Mayors Leading the Way on Climate

How Cities Large and Small are Taking Action

January 2020

ALLIANCE FOR A SUSTAINABLE FUTURE

a joint effort by The U.S. Conference of Mayors and the Center for Climate and Energy Solutions (C2ES)

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FOREWORD

The federal government's leadership role in addressing climate change has greatly diminished, from the planned withdrawal from the Paris Agreement to domestic actions to freeze vehicle standards and rollback power sector clean air targets. This is unfortunate and has real-world consequences. This coincides with several years of increasing average global temperatures, record flooding, heat waves, droughts and wildfires. The need for action is growing increasingly urgent as the impacts are felt in urban, suburban and rural America.

The U.S. Conference of Mayors (USCM) and the Center for Climate and Energy Solutions (C2ES) formed the Alliance for a Sustainable Future to provide a platform for the public and private sectors to accelerate carbon reduction programs and sustainable development.

Why such urgency? The staggering loss of life and property damage from so many recent, severe weather events enhanced by our changing climate is in the hundreds of billions of dollars. Multiple Category 5 hurricanes have occurred and in just one week in July, more than 30 million Americans were under flood watches in the eastern United States while 40 million faced record heat in the west. Wildfires exacerbated by high temperatures and winds burned throughout California and now Australia, destroying thousands of homes, devastating wildlife habitats, and leaving dozens of people dead.

The federal government is not leading on the issue of climate change and instead of matching world-wide efforts to reduce greenhouse gas emissions and raising ambitions to do more, it is, in fact, erasing previous efforts through detrimental policy choices such as rolling back methane emission protections and vehicle emissions standards and attempting to expand fossil fuel use and extraction. Despite this, cities and businesses are continuing to demonstrate leadership towards reducing their own carbon footprint, and thereby the nation's.

The Alliance collects data annually on what cities are doing to lower their carbon emissions in the fields of energy, vehicles, and buildings, while compiling information to be shared with other cities to encourage action. This information provides valuable data to policy makers at all levels of government including Congress when the study was included in Mayoral testimony regarding identifying tools that should be included in a national climate change policy.

Renewable energy, energy efficient buildings, and low-carbon transportation choices are proving valuable to communities time and again, and new technologies in these areas are establishing a foothold in the conventional economy. Moreover, the opportunities for city governments to support and enjoy the benefits of these advancements are growing.

Many of these initiatives work best when cities and the private sector coordinate and cooperate. In fact, the Alliance seeks to help facilitate that cooperation and sees it as essential if the nation is to meet aggressive carbon reduction goals and prepare for the impacts of climate change.

The results of the January, 2020, Alliance sustainability survey provide updated information on city and private programs to reduce carbon emissions and promote sustainable development. Our first report in September 2017 included data from 102 cities of all sizes. The 2018 survey covered 158 communities while this report includes the responses from 182 cities. Once again, the results indicate the desire of cities of all sizes to do more to meet the challenges of clean energy and sustainable development.

We invite you to join us.

EXECUTIVE SUMMARY

As part of the Alliance's ongoing work plan to promote sustainability and reduce greenhouse gas emissions, mayors across the country were asked about their city's efforts in the areas of low-carbon transportation, energy efficiency in new and existing buildings, and green electricity and conservation efforts. The sustainability questionnaire is designed to determine innovative practices in key local policy areas, identify trends, and define opportunities where additional assistance may be needed. The responses of more than 180 American cities in the third installment provides a snapshot of local and potential future action as well as assisting in the development of a baseline of city efforts.

Climate action at the local government level and coordination with the business community now play a more important role than ever in developing climate solutions. As the second largest carbon emitting country, the climate and energy policies of the United States set an example for the world community in the global effort to stem climate change. Many American cities and businesses are taking on a leadership role, embracing the responsibility of addressing this challenge for their citizens and employees. Broad coordination efforts such as "We Are Still In" and "America's Pledge" have grown to help fill the vacuum of national leadership. Our survey shows that cities are uniquely positioned to advance solutions and continue to step up to the challenge. However, they can't do it alone. Additional results and advancements could be achieved through additional resources and support at the state and federal level.

CLIMATE IMPACTS ARE AFFECTING CITIES AND THEY ARE RESPONDING

- **96 percent of cities are feeling the impacts of a changing climate.** Cities and their economic vitality are already threatened by climate change, with nearly every city experiencing a change related to at least one climate impact in the past five years. The most prevalent changes cities reported during this time include heavy rain events or inland flooding (80 percent of cities), heat waves (62 percent), and drought (48 percent). Additionally, 8 cities noted population relocation has occurred due to extreme weather.

- **60 percent of cities have launched or significantly expanded a climate initiative** or policy over the last 12 months, and 57 percent of cities will launch or significantly expand a climate initiative or policy this year.

CITIES ARE PROMOTING TRANSPORTATION SOLUTIONS

- **One third of city fleet vehicles are alternative fuel vehicles.** While gasoline and diesel vehicles make up more than half of each of the four classes of municipal vehicles, 34 percent are alternative fuel vehicles, demonstrating a commitment to addressing the largest source of greenhouse gas emissions through low-carbon operations. Large cities lead in the adoption of hybrid and plug-in hybrid passenger vehicles, as well as all-electric buses, a very recent addition to the market.

- **Nearly 60 percent of city governments have green vehicle purchasing policies** and an additional 26 percent are considering them. **More than 85 percent of new municipal vehicle purchases will be made in cities with a green vehicle purchasing policy,** signalling significant potential for fleet decarbonization over the coming years.

- **61 percent of cities support public electric vehicle (EV) charging stations,** with an additional 26 percent considering such action. This demonstrates a growing interest in providing the infrastructure necessary for clean vehicle deployment.

- **Bike-share and scooter-share services** are the most commonly cited transportation options cities are considering among an expanding slate of mobility choices.

RENEWABLE ENERGY USE IS GROWING

- **51 percent of cities have a renewable energy goal,** and an additional 21 percent are considering setting a goal.

- **67 percent of cities procure renewable electricity for municipal operations.** Forty-one of the responding cities cover more than 25 percent of government electricity demand with renewable sources. **14 cities cover all their municipal needs with renewable sources,** an increase from 8 in 2018.

- **54 percent of cities help citizens and businesses adopt renewable electricity options.** An additional 15 percent of cities are considering offering such support. Renewable policies and programs for residents and the private sector appear more common in cities with citywide renewable energy goals.

CITIES ARE TAKING ON BUILDING EFFICIENCY

- **Two-thirds of cities have energy efficiency policies for municipal buildings** (67 percent for new buildings and 64 percent for existing buildings). In addition, more than half have policies or incentives for new commercial and residential buildings.

- **71 percent of cities conduct routine energy audits for city buildings** and another 16 percent of cities are considering the practice.

- **29 percent of cities support or require energy benchmarking** of commercial buildings, an emerging local policy strategy.

PARTNERSHIPS REMAIN A VITAL STRATEGY FOR CLIMATE ACTION

- **90 percent or more of cities are partnering or interested in partnering with other local governments** in pursuit of transportation, renewable electricity, and energy efficiency solutions.

- **More than 87 percent of cities are partnering or interested in partnering with businesses** in pursuit of transportation, renewable electricity, and energy efficiency solutions.

- **Cities rate their utility partnerships for energy efficiency highest.** On a scale of 1 to 5, with 5 being excellent, utility partnerships around energy efficiency received a score of 3.7. Partnership scores for renewables and low-carbon transportation were slightly lower, at 3 and 3.1, respectively.

The private sector and nonprofit community are playing a vital role in supporting local leaders. Cities report strong collaborations have already been established, and also indicate real opportunities for new and expanded partnerships with other local governments and businesses to advance climate solutions. Increased collaboration will help more cities achieve more broader implementation, a strategy the Alliance for a Sustainable Future is designed to facilitate.

Most Common City Policies and Activities

Percentage of Cities with Policies and Activities Underway

Policy	Percentage
Bus Transit	94%
Bike Lanes	90%
Promote Bicycle Commuting	85%
GHG Emissions Tracking	76%
Routine Energy Audits for Municipal Buildings and	71%
Energy Efficiency Policies for New Municipal Buildings	67%
Purchase Renewable Electricity for City Operations	67%
Energy Efficiency Policies for Existing Municipal Buildings	64%

Percentage of Cities

Areas of Greatest Interest for New Participation

Percentage of Cities Considering or Interested

Area	Percentage
Partner with Businesses to Advance Building Energy Efficiency	58%
Partner with Businesses to Advance Renewable Electricity	57%
Partner with Businesses to Advance Climate Solutions in Transportation	57%
Partner with Local Governments to Advance Building Energy Efficiency	49%
Partner with Local Governments to Advance Renewable Electricity	49%
Partner with Local Governments to Advance Climate Solutions in Transportation	42%
Energy Benchmarking of Commercial Buildings	29%
Promote Installation of Private EV Charging Stations	28%
Program to Install Public EV Charging Stations	26%
Green Vehicle Procurement Policy	26%
Purchase Renewable Electricity for City Operations	25%

Percentage of Cities

SURVEY RESULTS

From July-August of 2019, 182 cities from 39 states provided answers to all or part of the questionnaire (see Appendix 2). Responding cities represent a broad geography and range in size from the smallest community Somerset, Maryland representing 1,285 residents to 8.6 million in New York City. Collectively, these 182 cities represent more than 55 million Americans.

City Population	Size Designation	Number of Responding Cities
Under 100,000	Small	90
100,000-250,000	Medium	45
Greater than 250,000	Large	47

CLIMATE IMPACTS AFFECTING CITIES

In the 139 years that the National Oceanic and Atmospheric Association (NOAA) have tracked global heat, 2014 to 2018 were the warmest years ever recorded, andJuly 2019 was the hottest month on record for the planet. This warming and the associated climate changes are expected to be felt increasingly at the local level; indeed there are indications this is already happening.

96% OF CITIES HAVE EXPERIENCED A CHANGE RELATED TO ONE CLIMATE IMPACT IN THE PAST FIVE YEARS.

Cities were asked to identify whether climate impacts have changed in frequency, intensity, or in different areas than in the past five years, a timeframe of 2013-2018. Out of 157 cities that provided responses, 96 percent of cities have experienced a change to at least one climate impact in the past five years (Figure 1). The most prevalent changes cities reported included heavy rain events or inland flooding (80 percent of cities), heat waves (62 percent), and drought (48 percent). Less prevalent, but still common changes cited included heavy snow or ice (36 percent), extreme cold (29 percent), storm surge (22 percent), wildfire (18 percent), tidal flooding (18 percent), and vector borne diseases (17 percent). Eight cities noted population relocation due to extreme weather (5 percent). Just 7 responding cities reported no changes to the impacts they have seen in the last five years.

Not only are cities experiencing changes to the impacts listed above, but they are experiencing several changes at once. The average city cited 3.4 changing impacts in the five-year time period, with large cities noting more (4.4) than their smaller counterparts (2.9) on average.

Figure 1. Cities Experiencing Changing Impacts in the Past 5 Years

Changing Frequency, Intensity, or Location


Number of Cities Reporting Change
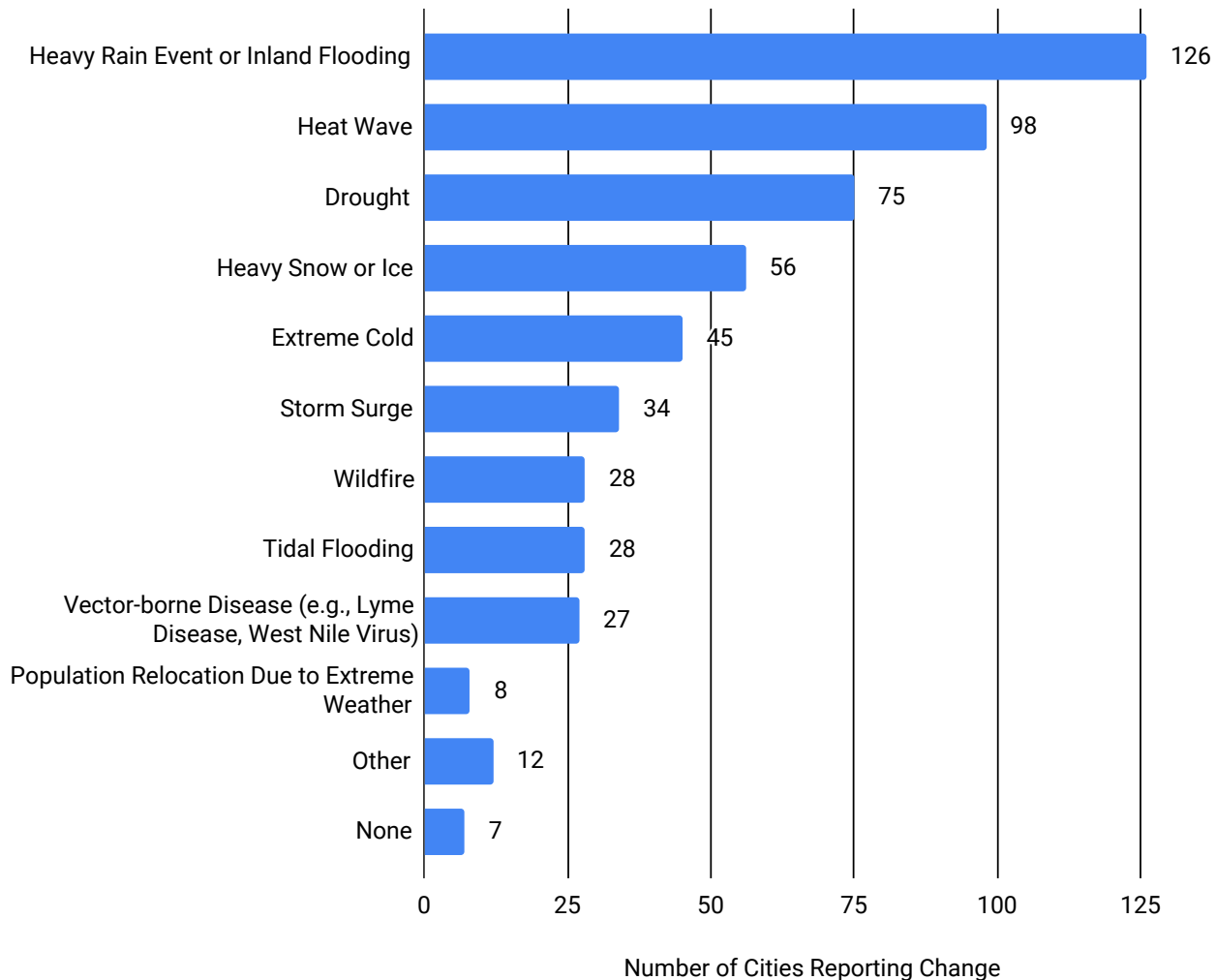
DISCUSSION

Extreme weather continues to impact American cities. During the timeframe of this question – 2013–18, NOAA recorded 72 "billion-dollar" weather disasters that caused nearly 4,000 deaths and more than $530 billion dollars in damage to U.S. communities, with 2017 breaking the record as the most expensive. These weather disasters include floods, severe weather, droughts, wildfires, heat waves, and hurricanes. While surveyed cities were not asked explicitly about these billion-dollar weather-related disasters, they reported changing conditions that are in line with the expectations of climate change projections in the 2017 Climate Science Special Report (volume 1 of the 4th National Climate Assessment). The financial ramifications of the 72 weather disasters alone underscore the vulnerability of U.S. communities. In reality, cities also consistently face economic and social impacts from extreme weather events that fall under this "billion dollar" threshold.

Cities are reporting changes in the frequency, intensity, and combination of climate impacts, and on average they are experiencing more than 3 types of changing impacts. These stressors will stretch the ability of local governments to provide adequate services and challenge departments to be prepared for a variety of climate impacts at any given time. Moreover, cities that continue to experience extreme or chronic events will likely find it necessary to prioritize adaptation strategies, reallocate assets and people, shore up budgets, and establish broader educational efforts within their governments to meet local needs. It is critical for communities large and small to be launching comprehensive climate adaptation initiatives to manage these challenges.

NEW CLIMATE ACTION

Over the last 12 months 60 percent of 157 cities have launched or significantly expanded a climate initiative or policy. This momentum is expected to continue; 57 percent of 157 cities will launch or significantly expand a climate initiative or policy this year (Figure 2). These cities cited plans to adopt new green vehicle procurement

Figure 2. Cities Planning to Expand or Launch a New Climate Initiative in the Next Year

● Yes   ● Considering   ● No

18.2%
24.2%
57.6%
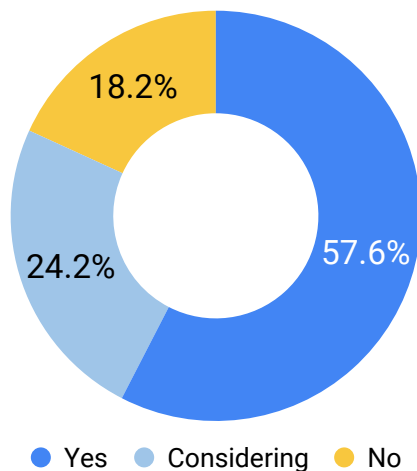
Fremont, California, a medium-sized city of 235,000, has been awarded a $245,000 Bay Area Air Quality Management District Climate Protection Grant to complete a planning, financial, and technical analysis of opportunities for scaling distributed energy resources to fully decarbonize the city's buildings and fleets. The project will explore the role of solar photovoltaic (PV) energy systems paired with energy storage and electric vehicle supply equipment to meet facility energy demands and increase the adoption of zero emission vehicles in municipal fleets. This project is a key priority implementation measure for both the Climate Action Plan and Smart City Action Plan, and meets numerous city goals related to greenhouse gas emissions reductions, public safety improvements, operational resiliency, long-term financial savings, and cross-departmental collaboration.

Kansas City, Missouri, (population 489,000) intends to enter into an agreement with KCP&L to procure 100 percent of the electricity for municipal operations from new wind energy generation. The city intends to complete a master plan to substantially increase its urban tree canopy and work with the local "Tree Champions" group for a major tree planting program on public and private property. This will be achieved by a public-private partnership between the city and Bridging The Gap, a local environmental non-profit.

Woodland, California, a community of 60,000, is hosting a CivicSpark Climate Fellow who will work with city staff and departments to help develop citywide capacity for assessing and reporting on Climate Action Plan (CAP) progress. The effort will help identify how CAP assessment data can inform citywide and departmental decision-making and streamline the process of turning raw data into useful, understandable, and consistent reports for city leadership and the public.

and energy benchmarking policies, partnerships to expand transit infrastructure, resilience measures to reduce heat and stormwater impacts, and increase municipal use of renewable energy. In addition, 38 cities noted their intentions to update existing climate plans or draft and adopt new mitigation or resilience plans in the next year.

Figure 3. Cities with Green Vehicle Procurement Policies

Large Cities

- 11.4%
- 13.6%
- 75.0%

Medium-Sized Cities

- 14.0%
- 34.9%
- 51.2%

Small Cities

- 18.5%
- 27.2%
- 54.3%

● Yes ● Considering ● No

57% OF CITIES WILL LAUNCH OR EXPAND A CLIMATE INITIATIVE THIS YEAR.

DISCUSSION

Cities across the United States are expanding and undertaking new climate initiatives and policies. The adoption of both new and more ambitious greenhouse gas reduction targets and community resilience strategies were reported by cities large and small in the past year. The activities indicate a broad interest in strategic approaches to reduce impacts and improve community preparedness to a changing climate. One recurring aspect of the reported activities is the reliance on grant dollars and external support to plan and implement measures.

TRANSPORTATION

Continuing the practice established in 2018, the survey requested information about the profiles of city fleets and whether cities have procurement policies to consider alternative fuel vehicles (AFVs), which are dedicated, flexible fuel, or dual-fuel vehicles designed to operate on at least one alternative fuel. The survey also gathered data on city programs and policies supporting community electric vehicle (EV) deployment and alternative modes of transport.

MUNICIPAL FLEETS

GREEN VEHICLE PROCUREMENT POLICIES

Nearly 60 percent of the responding cities have green vehicle purchasing policies, with an additional 26 percent considering such action. These policies are evenly spread across the country, but there is some variation by city size, with policies in place in 75 percent of large cities and more than half of medium and small cities (Figures 3 and 4). The tendency for large cities to have green vehicle policies means that the vast majority of municipal vehicles reported by survey respondents are in cities with the policies.

Figure 4. Municipal Policies for Green Vehicle Procurement
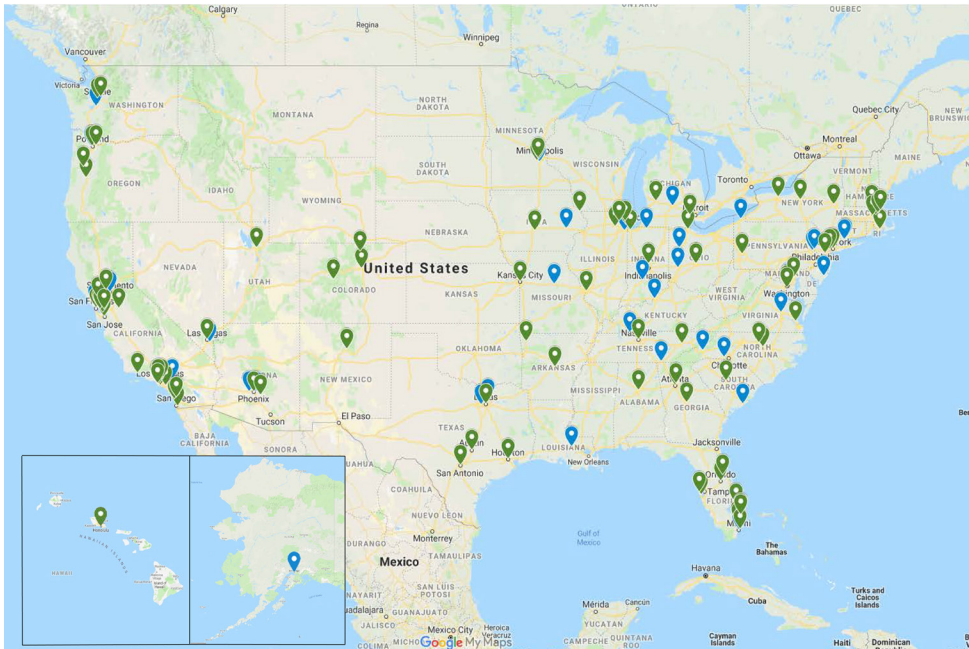
Map of U.S. cities reporting in 2019 the existence of municipal green vehicle procurement policies (green pin) and those reporting consideration of green vehicle procurement policies (blue pin).

In the coming year, 85 percent of municipal fleet purchases will be made by cities that will consider alternative fuel vehicles due to a green vehicle purchasing policy. Together, responding cities annually purchase or lease 5,300 municipal passenger cars, nearly 4,600 light-duty vehicles, nearly 1,500 medium- and heavy-duty vehicles, and more than 800 buses.

FLEET PROFILES

One third of city fleet vehicles are alternative fuel vehicles. Responding cities reported more than 156,000 fleet vehicles - and while gasoline and diesel vehicles continue to make up more than half of each of the four classes of municipal vehicles, 34 percent are alternative fuel vehicles (AFVs) (Figure 5). More specifically, AFVs account for 43 percent of reported municipal buses, 39 percent of medium-heavy-duty vehicles, 38 percent of passenger vehicles, and 20 percent of light-duty vehicles. Across these classes, there are differences in secondary fuel choices. For example, 15 percent of municipal passenger vehicles are flex fuel (followed closely by hybrids), 9 percent of light-duty vehicles are flex fuel, 33 percent of medium- and heavy-duty vehicles are biodiesel, and 17 percent of buses are compressed natural gas (CNG) or liquid natural gas

Clean Air Hybrid Electric Bus

1/3 OF CITY FLEET VEHICLES ARE ALTERNATIVE FUEL VEHICLES.

(LNG) (followed closely by hybrids). How fleet profiles break down according to city size yields additional insights and can be found in Appendix D.

Figure 5. 2019 Municipal Fleet Profile

Total Vehicle Numbers at Right
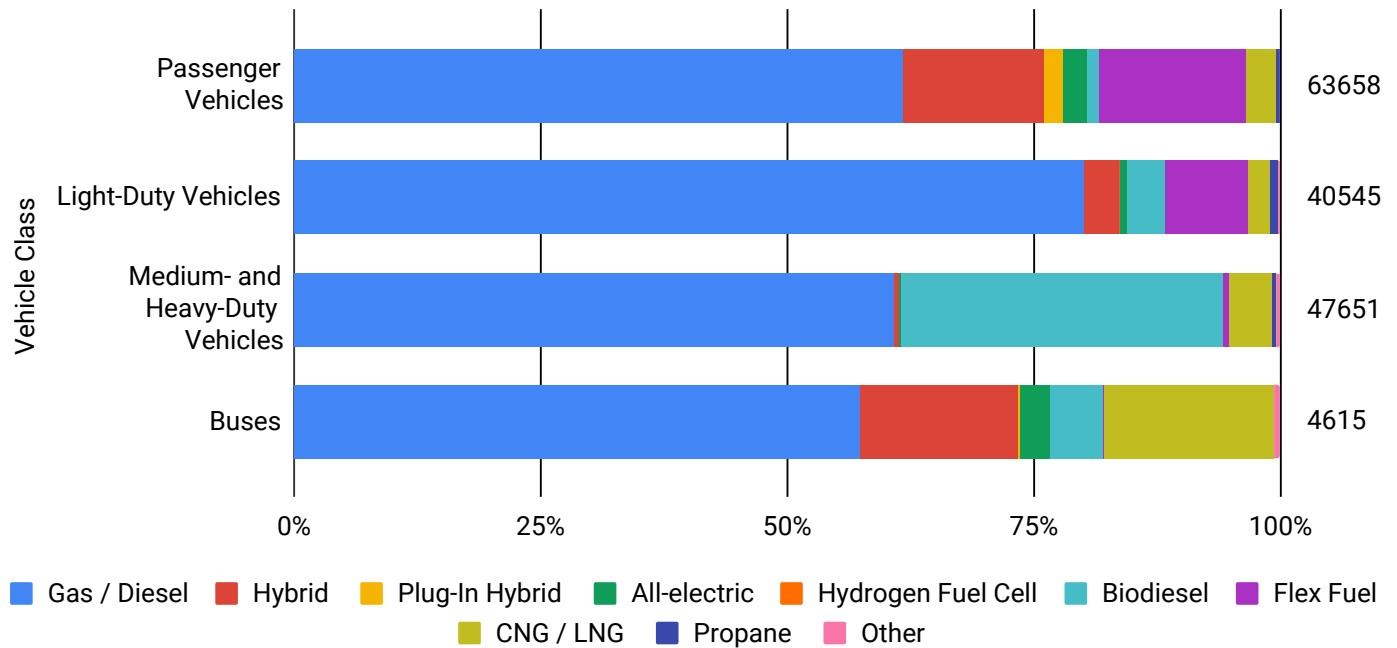
New York City and Austin are leaders in the adoption of alternative fuel fleet vehicles, with Los Angeles and Salt Lake City also have notably higher-than-average alternative fuel passenger vehicle numbers. These cities have made progress integrating alternative fuel vehicles into their fleets, favoring hybrid, electric, flex fuel, biodiesel, and CNG / LNG vehicles over hydrogen fuel cell and propane vehicles.

The data show that responding cities with green vehicle procurement policies tend to have more alternative fuel passenger, light-duty, and medium- and heavy-duty fleet vehicles than their counterparts without the policy (Figures 6, 7, 8, and 9). This connection does not appear for bus fleets, as all participating cities reported a variety of bus types. Further analysis would be necessary to establish a firm connection between the presence of the policy and fleet makeup.

Figure 6. Passenger Fleet Profiles

Total Reported Vehicles at Right

Gas / Diesel ■ Hybrid ■ Plug-In Hybrid ■ All-Electric ■ Hydrogen Fuel Cell ■ Biodiesel ■ Flex Fuel ■ CNG / LNG ■ Propane
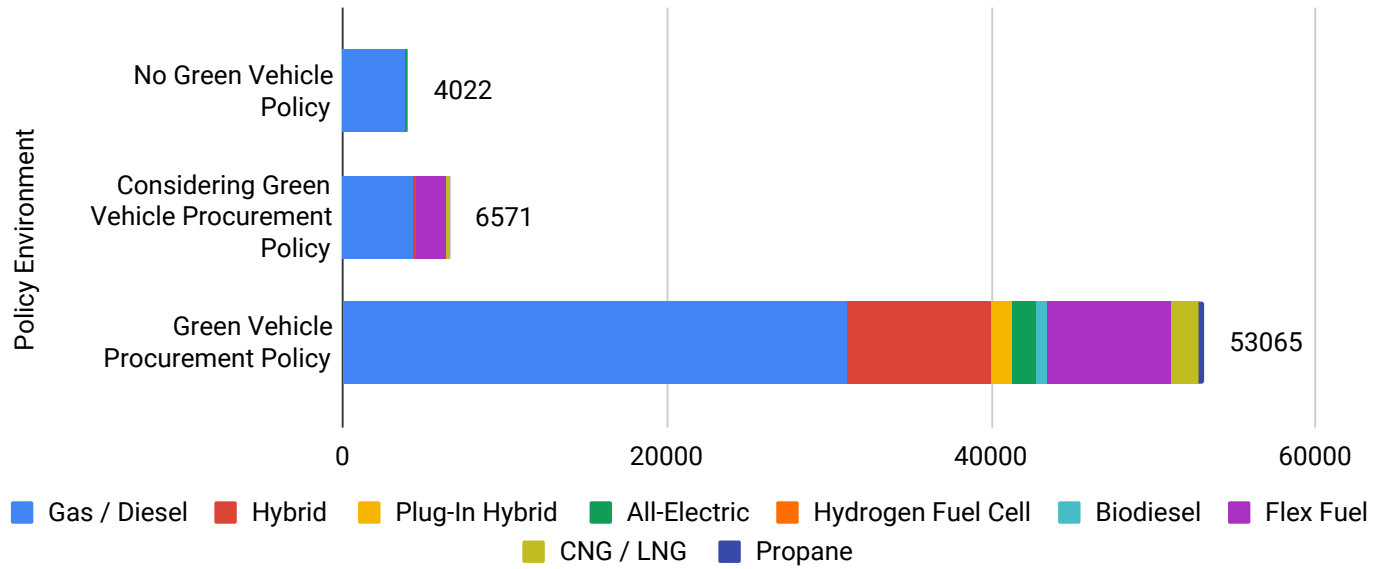
Figure 7. Light Duty Fleet Profiles

Total Reported Vehicles at Right

Gas / Diesel ■ Hybrid ■ Plug-In Hybrid ■ All-Electric ■ Biodiesel ■ Flex Fuel ■ CNG / LNG ■ Propane ■ Other
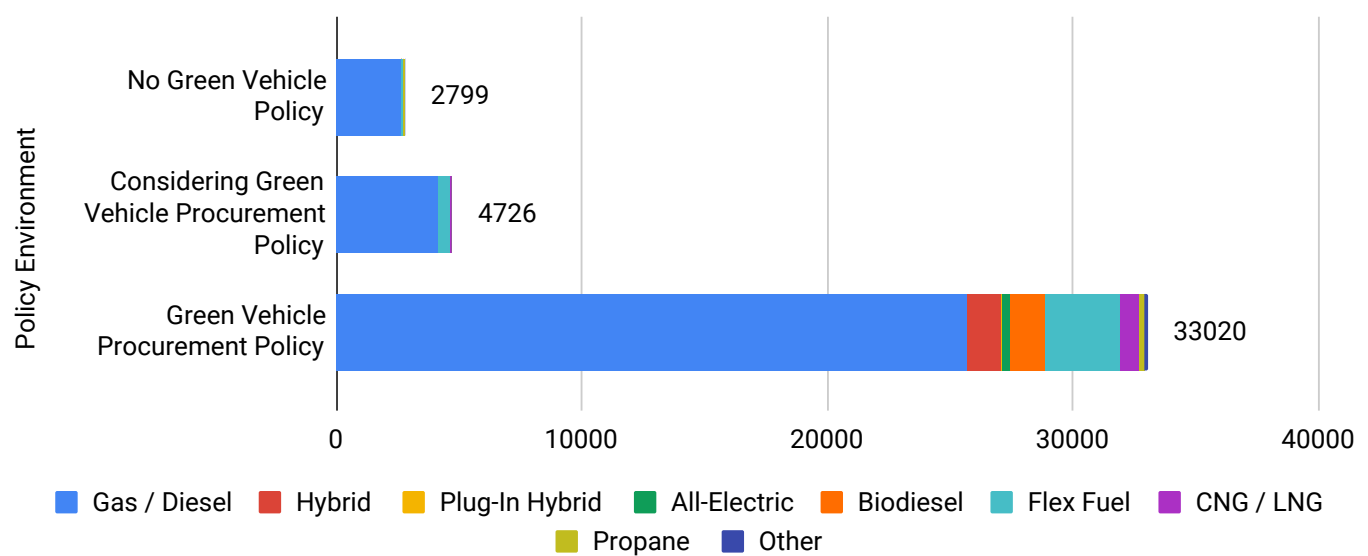
Figure 8. Medium- and Heavy-Duty Fleet Profiles

Total Reported Vehicles at Right

Legend: Gas / Diesel, Hybrid, All-Electric, Biodiesel, Flex Fuel, CNG / LNG, Propane, Other

Figure 9. Bus Fleet Profiles

Total Reported Vehicles at Right

Legend: Gas / Diesel, Hybrid, Plug-in Hybrid, All-Electric, Biodiesel, Flex Fuel, CNG / LNG, Other

85% OF CITIES PROMOTE BICYCLE COMMUTING

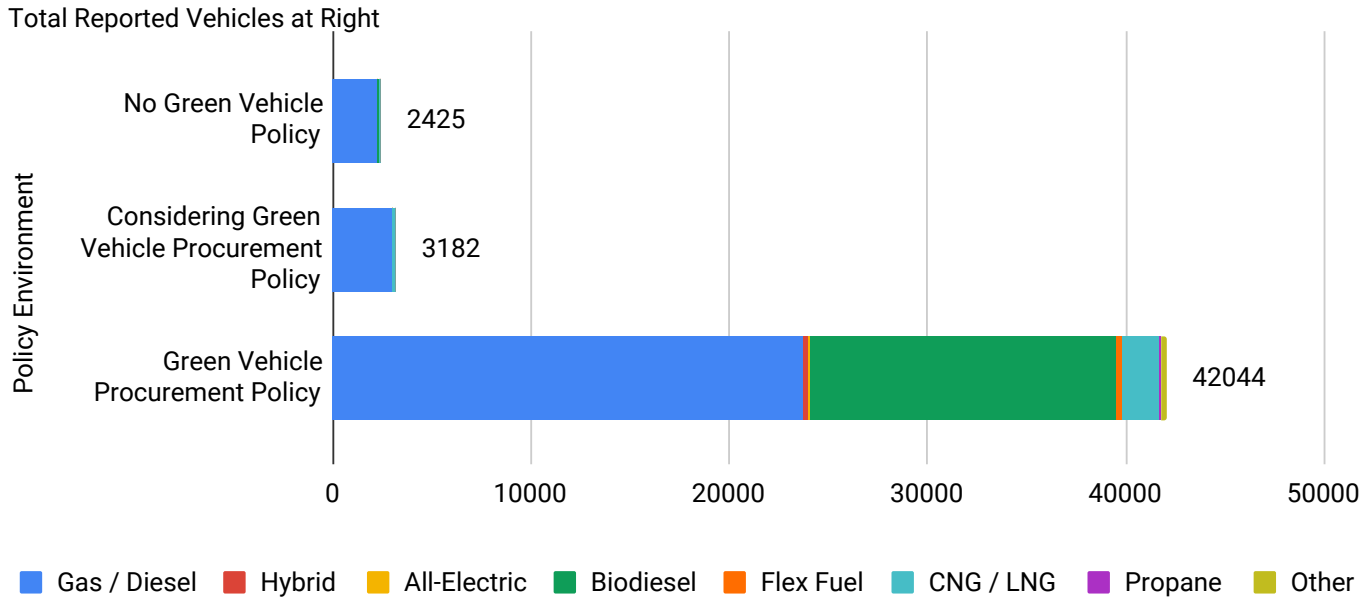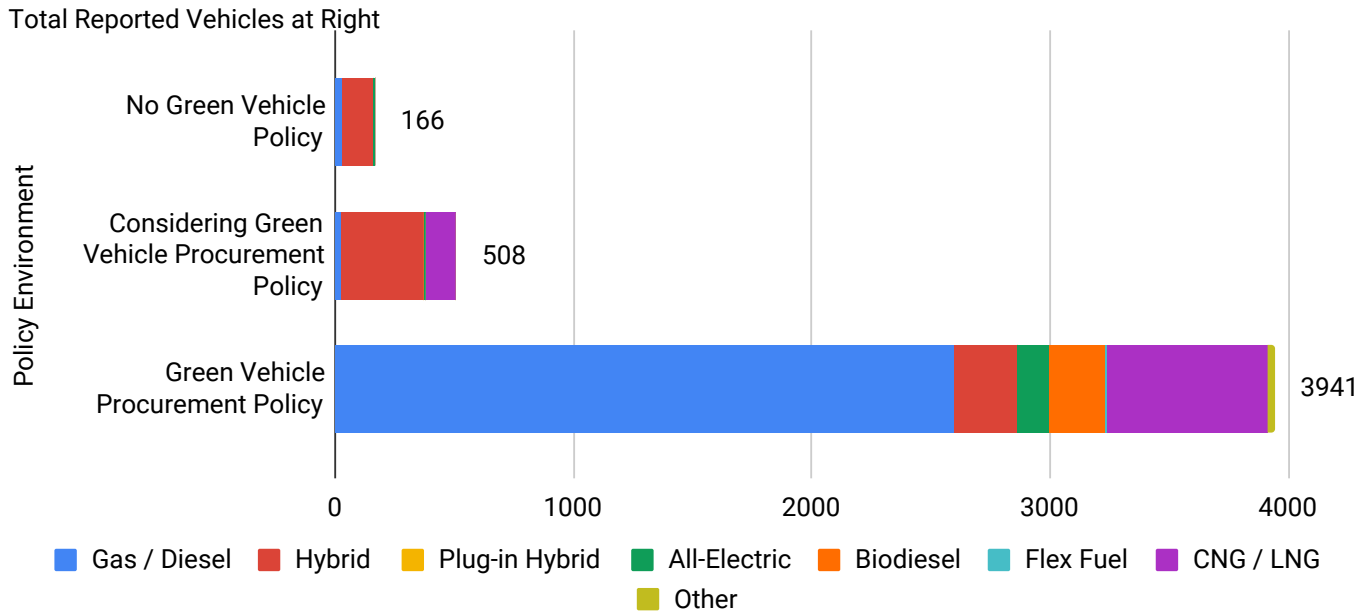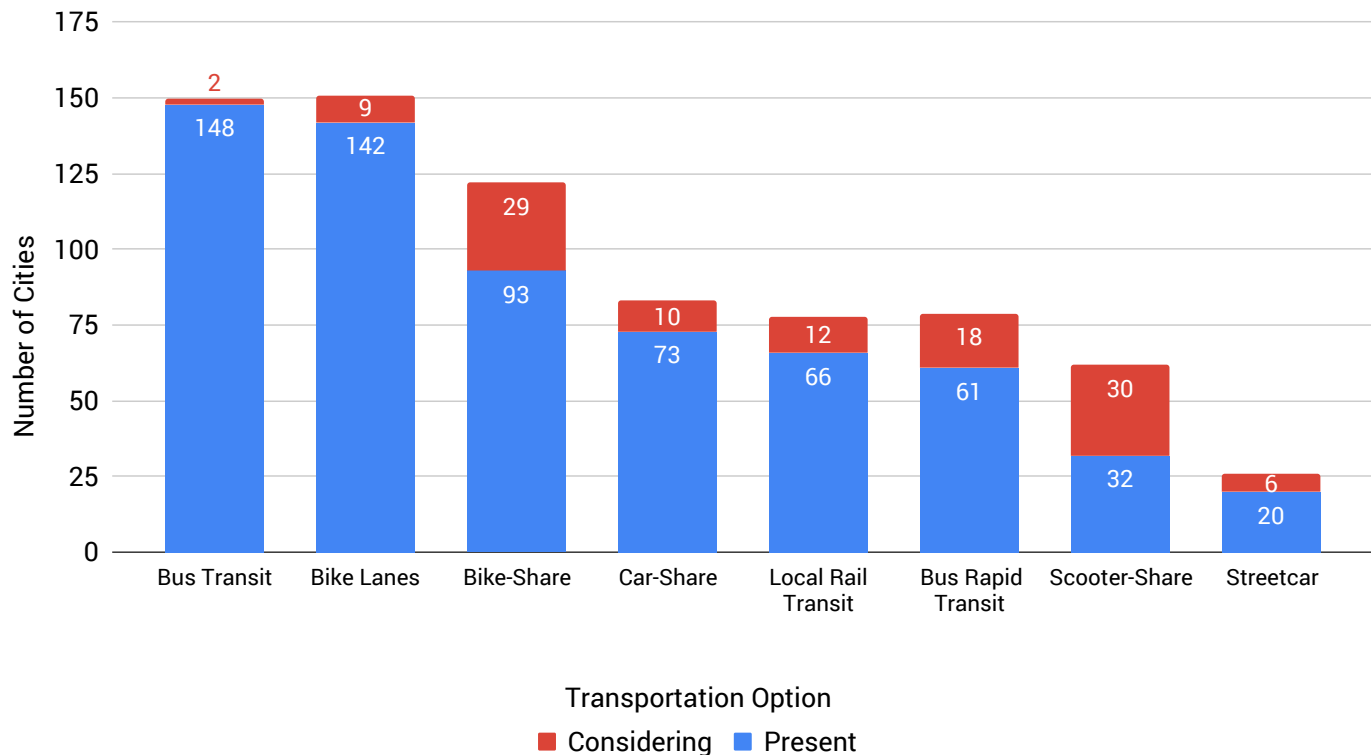## COMMUNITY TRANSPORTATION
ALTERNATIVE MODES OF TRANSPORTATION

The most common way cities promote alternative transportation is through bus transit and bike lanes, with more than 140 cities reporting the presence of each (Figure 10). With ninety-percent of cities reporting the presence of bike lanes, it follows that efforts to promote bicycle commuting would be common and that is indeed supported by the responses. City efforts to promote bicycle commuting remains a nearly universal mobility policy, with eighty-five percent of cities promoting the transportation mode, including 95 percent of large cities. Furthermore, bike-share programs are spreading quickly, with 93 cities reporting their presence, up from 67 cities in the previous year. They are nearly ubiquitous in cities over 250,000, and the presence of these programs (as well as scooter-shares) appear to be most connected to city size.

Opportunities to provide new modes of transportation have expanded in recent years, and bike-share and scooter-share services are the most commonly cited options under consideration (29 and 30 cities, respectively). Compared to the previous year, more cities are considering these options. In particular, more small and medium-sized cities are considering bike-share programs, while more large and medium-sized cities are considering scooter-shares.

Figure 10. Transportation Options in Cities

Bar chart — Number of Cities (y-axis, 0 to 175) by Transportation Option (x-axis). Values labeled Present (blue) and Considering (red):

- Bus Transit: Present 148, Considering 2
- Bike Lanes: Present 142, Considering 9
- Bike-Share: Present 93, Considering 29
- Car-Share: Present 73, Considering 10
- Local Rail Transit: Present 66, Considering 12
- Bus Rapid Transit: Present 61, Considering 18
- Scooter-Share: Present 32, Considering 30
- Streetcar: Present 20, Considering 6

Legend: ▮ Considering ▮ Present

INCENTIVIZING COMMUNITY ADOPTION OF ELECTRIC VEHICLES

Charging Infrastructure

Local policies and programs to install public EV charging stations or promote private installations are found in every region of the country (Figure 11). Sixty-two percent of 170 responding cities have a policy or program to install public charging stations, with an additional 26 percent considering such action. These programs appear to be gaining popularity, particularly in small cities, as 59 percent of small cities report such measures, up from 49 percent in the previous year.

Figure 11. Municipal Support for Electric Vehicle Charging
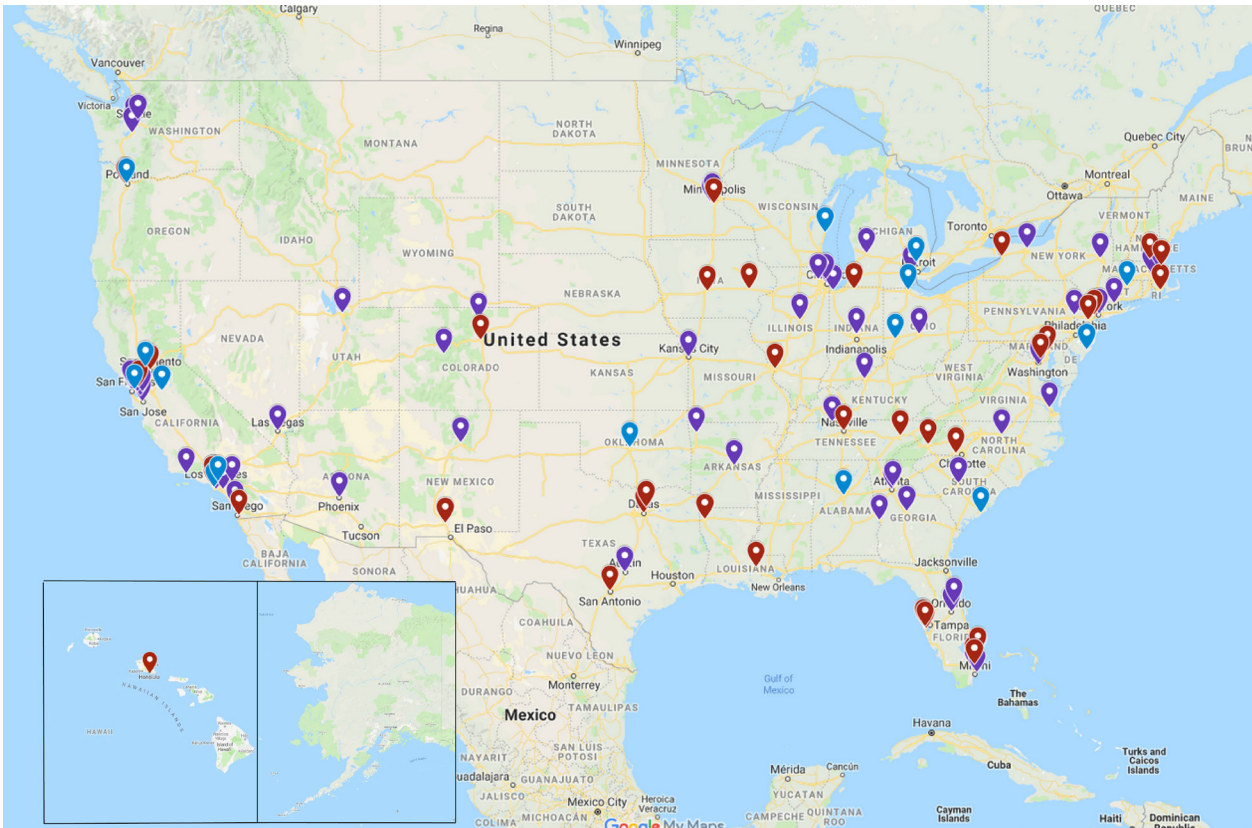
Map of U.S. cities reporting in 2019 the existence of: local policies and programs to promote private charging station installations (blue pins), policies and programs to promote public charging station installations (red pins), and policies and programs to promote both public and private EV charging station installations (purple pins).

Similarly, half of 167 responding cities have policies or programs that promote private charging infrastructure, and an additional 28 percent are considering such action. There appears to be no influence of city size in this regard.

Louisville, Kentucky is working with a variety of private-sector partners to improve and expand mobility choices in the city. Through a partnership with the navigation app Waze, the City collects congestion data, releases signal timing plans, and provides quick, real-time traffic reports to drivers to improve traffic conditions and drive time. Louisville's bikeshare program, LouVelo, is a business partnership that currently consists of 321 shareable bikes and 31 stations. The City also partners with dockless vehicle operators including Lime, Byrd and Bolt, to provide a scooter-sharing system for residents. Bird and Lime are currently in the process of applying for their full operation license, which would allow each operator a maximum fleet of 1050 dockless scooters. Louisville Metro also partners with Louisville Gas & Electric- Kentucky Utilities to install electric vehicle charging stations and improve zero emission vehicle infrastructure throughout the city.

EV Incentives for Citizens

Thirty-eight cities (23 percent) are considering offering incentives for citizens to purchase their own electric vehicles, a benefit already in place in 18 cities.

PARTNERSHIPS

Ninety-three percent of cities are either interested in partnering or are already partnering with other local governments in pursuit of transportation solutions. Similarly, 87 percent of cities are partnering or interested in partnering with businesses (Figure 12). When compared with 2018 results, it is clear that interest in transportation-focused partnerships remains high.

Figure 12. Partnerships to Advance Transportation Solutions
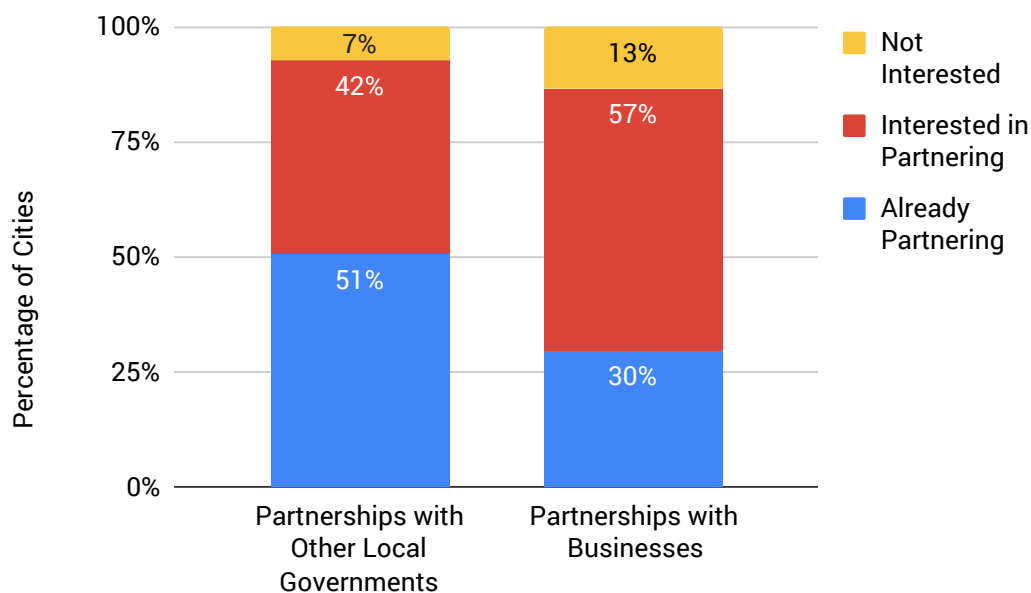
DISCUSSION

For the third year in a row, in 2018 the transportation sector was responsible for the largest share of U.S. greenhouse gas emissions – beating out the electricity, industry, building, agriculture, and oil and gas sectors. Although solutions have yet to meet the scale of the challenge, a quickly diversifying suite of alternative fuel vehicles and transportation options are giving communities new opportunities to test and promote mobility solutions.

In setting a baseline for municipal fleets in 2018, it became clear that conventional gasoline and diesel vehicles dominate, and that continues in 2019. However, the results also show that cities are not afraid to test and rely on new options. Fleets employ a variety of alternative fuel vehicles; large cities in particular appear to be leading in the adoption of hybrid and plug-in hybrid passenger vehicles, as well as all-electric buses – a very recent addition to the market. Adoption of all-electric vehicles requires proper charging infrastructure and confidence in grid reliability, underscoring the importance of strong collaboration with electric utilities.

By collecting information on municipal fleet profiles, the Alliance intends to uncover whether city fleets are transitioning to alternative fuel vehicles – particularly electric vehicles. With two years of data (2018 and 2019), it is too soon to tell whether cities are undergoing a transformational shift, but there are several developments that may support continued adoption of EVs. First, the recent expansion of available EV models is one important step to lowering the barrier to greater municipal procurement. According to the U.S. Department of Energy's Alternative Fuels Data Center, the number of available models continues to rise, from 0 in 2007 and 27 in 2015, to 55 models in 2018. Second, local governments across the country have begun to coordinate to accelerate adoption. The Climate Mayors Electric Vehicle Purchasing Collaborative is negotiating lower prices for local governments and working to demonstrate a growing demand for the new vehicles. Finally, the survey responses themselves also indicate that local governments are very open to new vehicle types. Green vehicle procurement policies exist in nearly 60 percent of U.S. cities, which together will make 85 percent of new municipal vehicle purchases.

This is notable because the fleet profiles reported by these particular cities are more diverse than their counterparts without the procurement policies. These three factors and more may be facilitating a transition, but additional years of data collection and analysis are needed to be sure.

The impacts of transportation reach far beyond government fleets. The 2019 survey continues to track the alternative transportation modes cities provide to citizens. Although extent and usage was not measured, public bus services and bike lanes are present across American cities. And building on 2018 findings, recently available options such as bike-share and scooter-share services are gaining a foothold in larger cities, and garnering interest in many others. The prevalence of these services in larger cities is not surprising; their success requires a certain level of density and connectivity that more urbanized areas offer readily. More established transportation modes that remain less common include streetcars, local rail transit, car-share services, and bus rapid transit. These modes provide longer-distance mobility to a broad portion of the population, a niche that remains important.

Finally, over 61 percent of cities are installing public Electric Vehicle (EV) charging stations with another 26 percent considering it. And nearly 50 percent are promoting the installation of private EV charging stations. In addition to providing GHG reduction benefits, these efforts can support regional air quality goals. Broader support and investment by states, the private sector, utilities, and nonprofit sector are likely critical to ensuring local government focus and progress in this area.

Figure 13. City Governments Purchasing Renewable Electricity
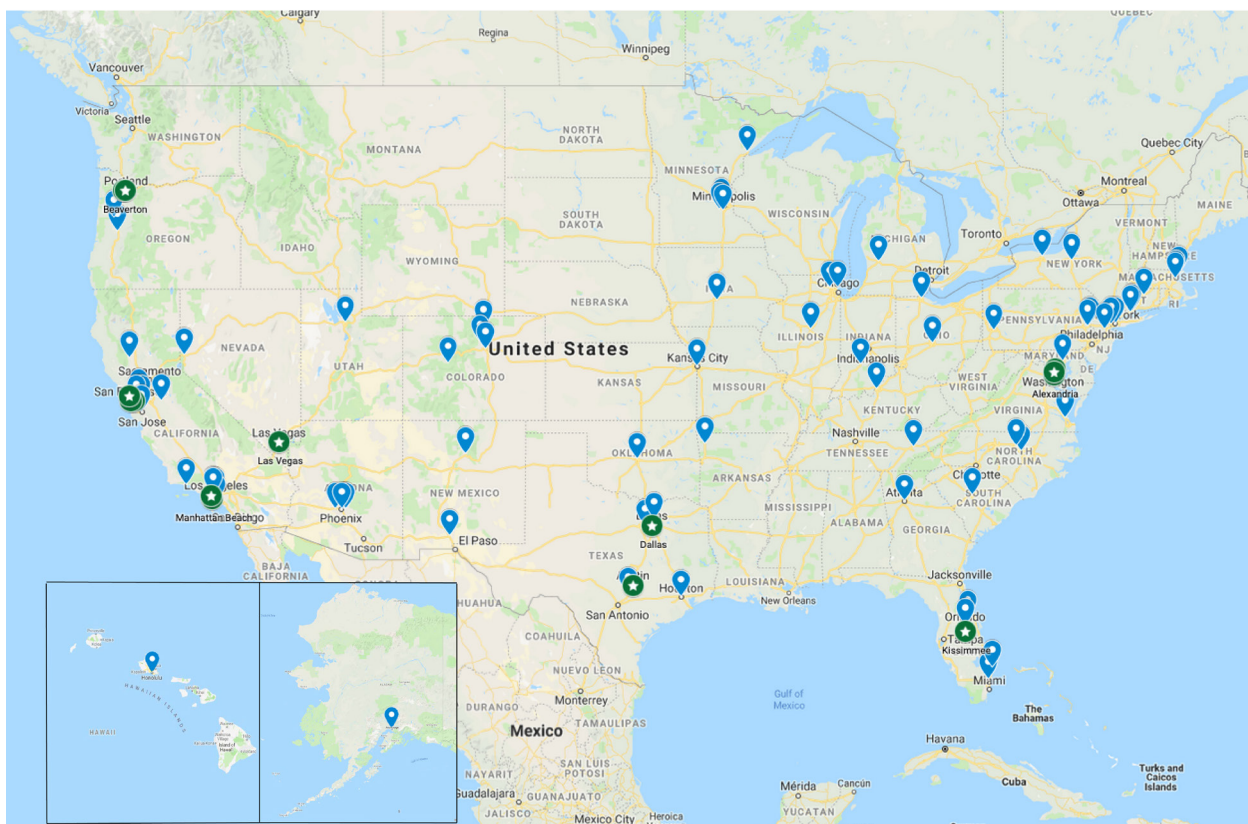
Map of U.S. cities reporting in 2019 the practice of purchasing renewable electricity to serve government building and operational demand. Amount of demand covered varies: Fourteen cities reported fully covering government operations with renewable energy (green pins), those covering up to 99 percent of demand shown with blue pins.

RENEWABLE ENERGY

For cities looking to reduce emissions, choosing a lower-carbon fuel source for electricity generation represents a huge area of opportunity to reduce greenhouse gas emissions. The questionnaire requested information regarding municipal and citywide targets for renewable electricity in addition to procurement and policy approaches.

ELECTRICITY FOR MUNICIPAL OPERATIONS

More than half (51 percent) of 178 responding cities have a renewable electricity goal for government operations, and an additional 21 percent are considering setting one. While the targets of each goal vary, cities share common strategies to meet them. Based on responses provided, cities expect to achieve their goals through coordination with their utilities, hosting on-site renewable energy generation, purchasing renewable energy certificates (RECs), and entering power purchase agreements (PPAs).

Overall, 67 percent of cities use renewable electricity for municipal operations. Ninety cities reported the amount used by the government, an increase of 26 cities who provided this information in 2018 (Figure 14). Forty-one of these cities cover more than 25 percent of government electricity demand with renewable sources and 14 cities cover 100 percent of government electricity demand with renewables, an increase from just 8 cities in 2018. These cities include Dallas, Austin, San Francisco, Washington D.C., Portland, Las Vegas, Oakland, Alexandria, VA, Beaverton, OR, Santa Monica, Kissimmee, San Rafael, Manhattan Beach, and College Park, MD. City size may play a role in purchasing extent; while 87 percent of large cities procure some amount of renewable electricity for their operations, those achieving 100 percent renewable electricity serve populations under 1.4 million people.

Figure 14. Municipal Renewable Electricity Procurement in 2018 and 2019

Proportion of Total Renewable Electricity for Municipal Operations
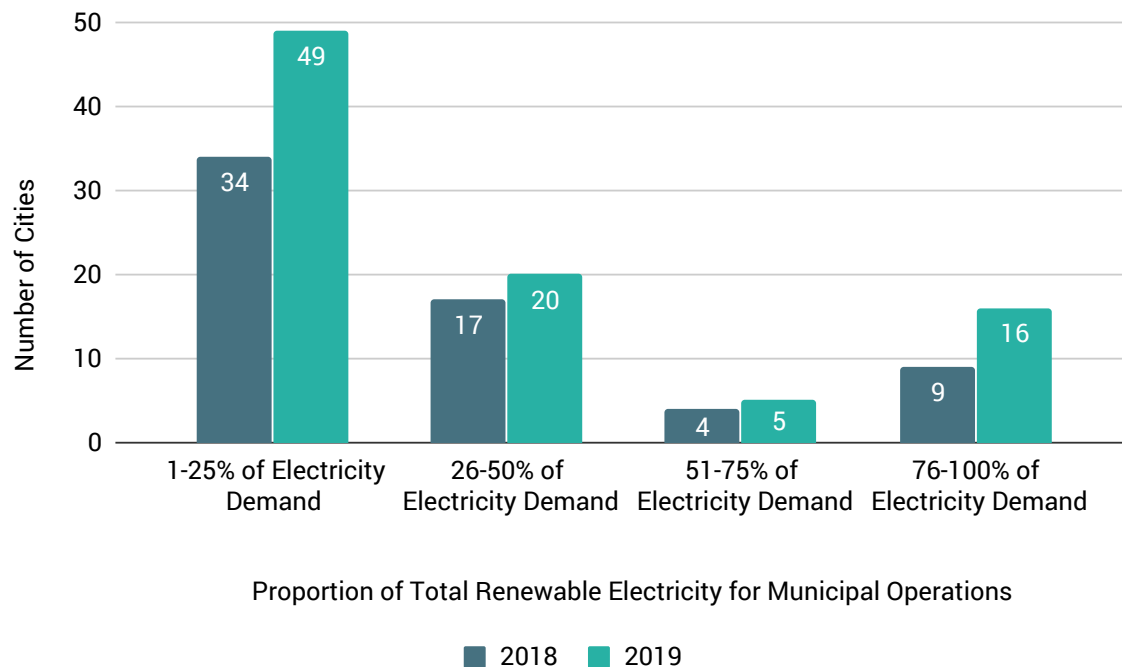
As noted earlier, more than half of cities have a government renewable electricity target. Ninety-two percent of the cities that have a government target also purchase renewable electricity, with an additional 6 percent interested in purchasing it (Figure 15). For those cities without a government target, renewable electricity purchases are still very common, with fully 50 percent purchasing renewable energy as shown in the right-hand bar of Figure 15, an increase from 39 percent in 2018. This appears to indicate that while setting a renewable energy goal encourages the follow-through of purchasing renewable electricity, a goal is not the only driver.

Figure 15. Percentage of Cities Procuring Renewable Electricity for City Operations

67% OF CITIES USE RENEWABLE ELECTRICITY FOR MUNICIPAL OPERATIONS
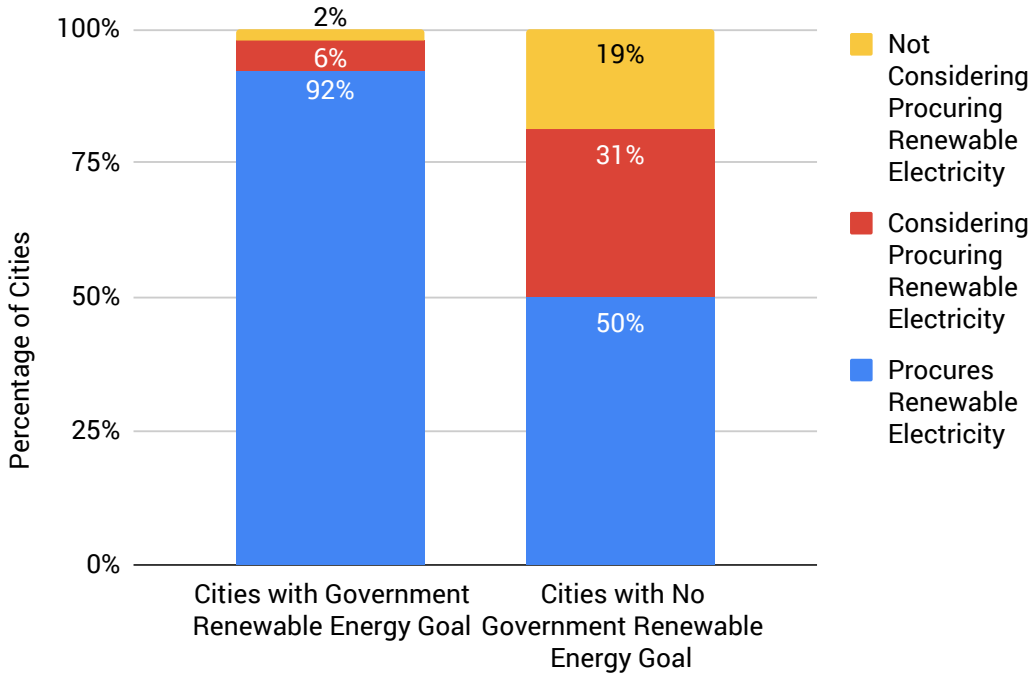
As shown in Figure 16, PPAs and government-generated electricity are the most common methods cities use to procure renewable energy. Community choice aggregation (CCA), an option available in eight states, is a method more commonly used by small cities, while the use of green tariffs and community solar programs are fairly evenly common among large and small cities. Although green tariffs are allowed in 16 states, this strategy appears to be the least popular among cities. Aside from direct procurements of renewable electricity, 17 percent (28 of 161) of responding cities purchase renewable energy certificates (RECs).

Figure 16. Methods of Renewable Electricity Procurement Used by City Governments
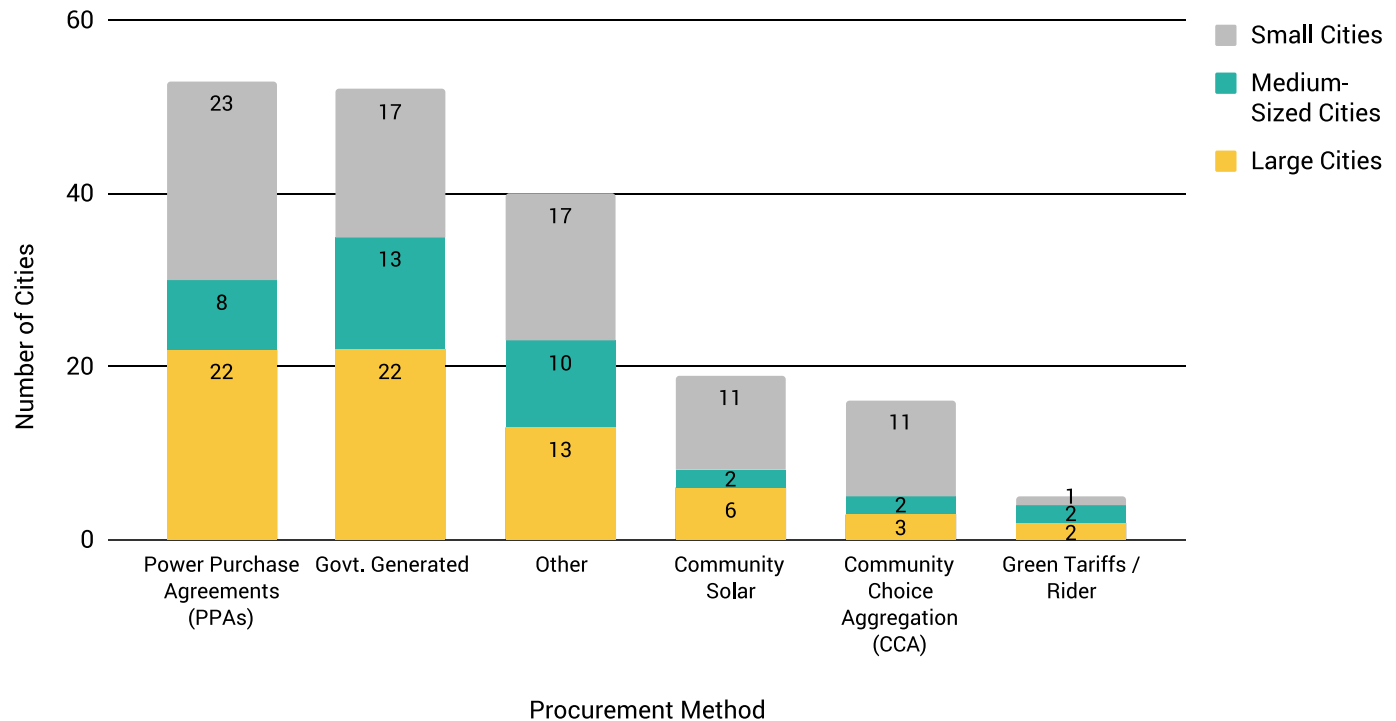
Las Vegas's (population 644,644) goal is to maintain net-zero energy which it currently receives through a Renewable Energy Agreement with the state's investor-owned utility NV Energy. The portfolio includes on-site generation from 3 megawatts of net-metered solar covered parking on forty city buildings and facilities, parks, fire stations and community centers, and a 3 megawatt solar plant at the city's Water Pollution Control Facility for wastewater treatment. The City also receives 5 megawatts of hydropower from Hoover Dam, and additional power provided by NV Energy already satisfies Nevada's renewable portfolio standard.

ELECTRICITY FOR THE COMMUNITY

Thirty-nine percent of 177 cities have set a citywide renewable energy goal, and an additional 24 percent are considering setting one. Large cities more commonly have these targets, with more than half of participants responding affirmatively, compared to twenty-nine percent of medium-sized cities and 35 percent of small cities. Interest has increased since 2018, when 19 percent of cities were considering setting such a goal.

Fifty-four percent of cities have policies or programs that help citizens and businesses choose renewable electricity options. Fifteen percent of cities are considering offering such support. Renewable electricity policies and programs for residents and the private sector appear more common in cities that have set citywide renewable energy goals (Figure 17). Property-Assessed Clean Energy (PACE) financing, Solarize programs, and Community Choice Aggregation (CCA) programs were commonly reported as the type of local program or incentive to promote renewable electricity adoption by the community.

Figure 17. Presence of Policies and Programs for Renewable Electricity Adoption by the Community
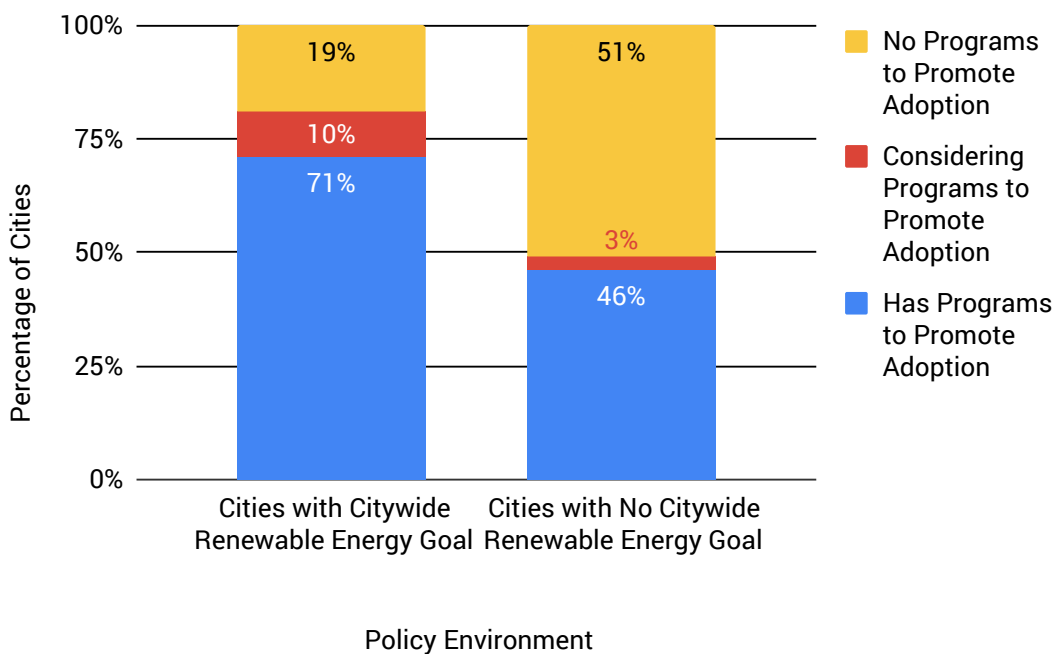
PARTNERSHIPS

57 percent of cities are interested in partnering with businesses in pursuit of renewable energy solutions. Nearly 50 percent of cities are interested in working with other local governments to advance renewable energy. Additional cities already have partnerships, bringing the combined amount to almost 90 percent of cities that are either interested or already engaging in renewable energy partnerships with businesses or other governments (Figure 18).

Figure 18. Partnerships to Advance Renewable Electricity
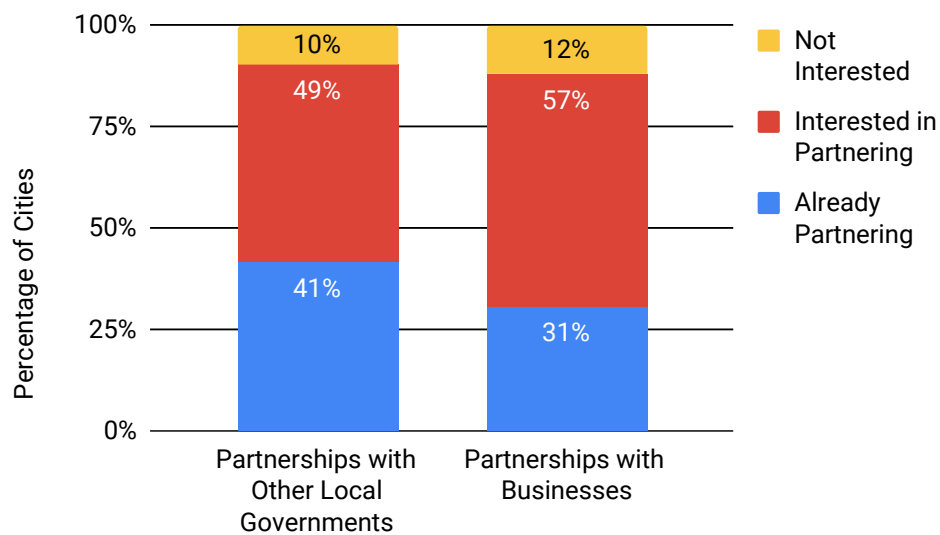
Santa Fe, New Mexico (population 84,612) currently meets 25 percent of city electricity needs with renewable sources. In 2019, the city set goals to achieve 50 percent renewable energy by 2025, and carbon neutrality by the year 2040. The city plans to achieve these goals by improving energy efficiency – starting with an investment-grade audit at 22 city facilities, installing behind-the-meter photovoltaic systems, and enhancing collaboration with the local utility. The city has secured state funding to plan and design a public-private partnership for solar energy systems development and installation at city facilities.

Beverly Hills, California (population 34,183) is a member of the Clean Power Alliance (CPA). The CPA was established in 2017 to provide cost competitive electric services, reduce electric sector greenhouse gas emissions, stimulate renewable energy development, implement distributed energy resources, promote energy efficiency and demand reduction programs, and sustain long-term rate stability for residents and businesses through local control. CPA is comprised of 31 local agencies including but not limited to Beverly Hills, Culver City, Santa Monica, and other Los Angeles and Ventura County agencies.

DISCUSSION

The U.S. Conference of Mayors has adopted several resolutions supporting cities' efforts to establish community-wide targets of powering their communities with 100 percent clean, renewable energy by 2035. Cities procuring renewable electricity does appear to be steadily rising. This may mean that energy utilities and project developers are meeting the increasing demand of mayors to provide clean energy solutions or that as cities become comfortable procuring some amount of renewable electricity, entering new deals or expanding existing ones become easier.

Given the current level of renewable energy adoption reported by the participating cities, there is much work to do if achieving 100 percent renewable energy goal is to become common practice. It appears that setting renewable energy targets would aid these efforts. The results shown in Figures 15 and 17 seem to indicate that setting a renewable energy goal can strongly influence the actual procurement of renewable electricity and the presence of policies and incentives for community adoption.

ENERGY EFFICIENCY

It is estimated that buildings are directly and indirectly responsible for nearly 40 percent of U.S. carbon dioxide emissions. Furthermore, energy costs comprise a significant expense for city governments. Together, 136 responding cities spend more than $1.78 billion annually on electricity alone.

Aside from controlling government buildings and assets, most cities have some authority over local building codes for both new and existing buildings. This jurisdiction allows cities to pursue policies that increase energy efficiency of both public and private buildings.

POLICIES FOR MUNICIPAL BUILDINGS

The majority of city governments have policies to promote energy efficiency with new and existing municipal buildings and operations (67 percent and 64 percent respectively). These policies are more common in cities with populations larger than 250,000, with 83 percent of large cities having policies or incentives for new buildings and 89 percent for existing municipal buildings. By comparison, energy efficiency policies for existing municipal buildings where found in 48 percent of small cities

(Figure 19). Policies take a variety of forms but may include requirements to achieve specific energy performance levels or third-party certifications, participation in energy benchmarking programs, and upgrade projects for city assets.

Figure 19. Prevalence of Energy Efficiency Policies for Buildings

Legend: ■ Large Cities ■ Medium-Sized Cities ■ Small Cities

Y-axis: Percentage of Cities with Energy Efficiency Policy (0% – 100%)

Category	Large Cities	Medium-Sized Cities	Small Cities
Existing Municipal	88%	67%	48%
New Municipal	83%	60%	62%
Existing Commercial	65%	38%	50%
New Commercial	60%	60%	51%
Existing Residential	54%	50%	30%
New Residential	60%	47%	48%
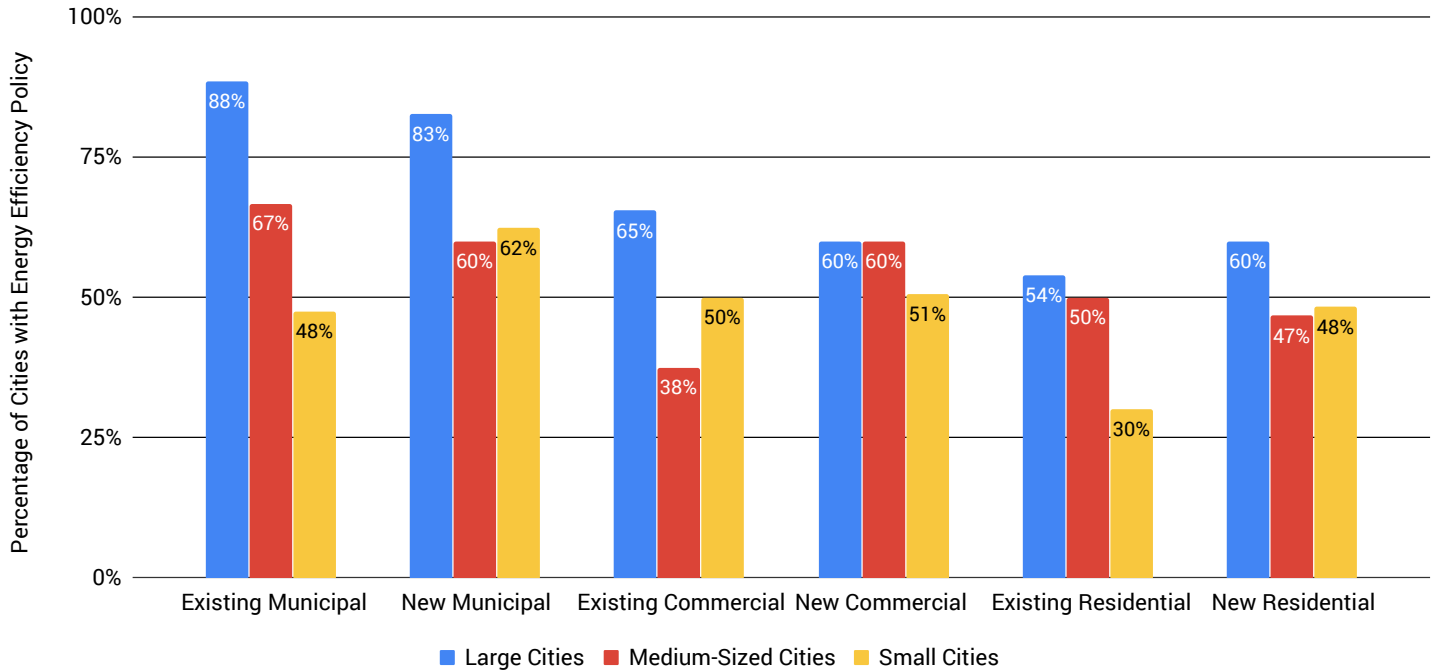
ENERGY AUDITS

Seventy-one percent of 177 cities conduct routine energy audits for city buildings and another 16 percent of cities are considering the practice. These results mirror the popularity of policies to promote efficient municipal operations discussed above and demonstrate recurring practices to ensure energy savings are achieved throughout the lifetime of the building.

Raleigh, North Carolina (population 469,298) has an energy efficiency policy requiring that all new or renovations to existing municipal buildings greater than 10,000 square feet achieve a Silver level certification of USGBC's LEED Building Rating System, or their respective equivalence. A higher equivalent rating (Gold or Platinum) should be sought where practical and as funding is available.

52% OF CITIES HAVE ENERGY EFFICIENCY POLICIES OR INCENTIVES FOR NEW COMMERCIAL BUILDINGS

71% OF CITIES CONDUCT ROUTINE ENERGY AUDITS FOR CITY BUILDINGS

POLICIES FOR COMMERCIAL AND RESIDENTIAL BUILDINGS

52 percent of 175 cities have energy efficiency policies or incentives for new commercial buildings, while forty-three percent of 90 responding cities have such policies for existing commercial buildings. Cited policies include advanced building and energy codes; requirements for specific upgrades, energy performance levels, or third-party certifications; participation in energy benchmarking programs; and financing programs to support investments. When mandatory requirements are in place, building size (e.g., greater than 25,000 square feet) serves as a common threshold for buildings that must report.

Policies for new commercial buildings are found in 60 percent of both large and medium sized cities. Small cities are not far behind in adopting this policy, as half of small cities also have policies for new commercial buildings (Figure 19).

Oklahoma City, Oklahoma (population 649,021) provides energy efficiency and weatherization funding via the Green Home Loan program, originally established through the Energy Efficiency and Conservation Block Grant. The program provides loans up to $15,000 for 4-year terms at a fixed 3 percent interest rate to households with annual income less than $100,000. Additionally, the city's investor-owned utility, Oklahoma Gas & Electric, also offers demand-side management efficiency programs for residents.

Rochester, New York (population 206,284) created a Sustainable Practices for Building Owners and Occupants handbook to provide members of the Rochester community with resources and sustainable practices for homes, rental units, or development of residential, commercial, and mixed-use projects within the city. The handbook includes information about available energy efficiency technologies, how they work, how to compare these technologies and make the best selection for a property, and how to take advantage of incentives available. The handbook can help homeowners through the decision-making process of investing in the best energy efficiency improvements for their property and support tenants in working with their landlords to improve their homes so that it is mutually beneficial.

Policies or incentives for both new and existing commercial buildings represent an area for potential growth as 24 percent of cities are considering policies for existing commercial buildings and 17 percent are considering policies for new commercial buildings.

Forty-two percent of responding cities have established energy efficiency policies or incentives for existing residential buildings, while 51 percent have established them for new residential buildings. For existing residential buildings, more than half of large and medium-sized cities have policies, while small cities lag behind with only 30 percent reporting having policies in place. Energy efficiency policies for new residential buildings are most common in large cities (60 percent), although they are very common in small and medium-sized cities (48 and 47 percent, respectively) (Figure 19).

Cities offer a variety of policies and incentives to improve residential energy efficiency. These include rebates, financing programs for home improvements (including PACE programs), updated building codes for new buildings and/or major renovations, and voluntary home energy audit programs. In addition, many cities reported their focus on enforcing statewide energy codes as their primary strategy.

ENERGY BENCHMARKING

Energy benchmarking has emerged as a common local policy strategy to collect and share energy use data of buildings—typically commercial buildings of a certain size. The approach facilitates energy performance tracking of buildings, supports decision-making for efficiency investments and creates a local market for high-performing buildings.

Currently, 51 (29 percent) of 174 responding cities support or require energy benchmarking of commercial buildings. These policies are most common in larger communities, with 59 percent of large cities supporting or requiring energy benchmarking. The potential for greater adoption is substantial across all city sizes; the policy is being considered in 26 percent of large cities, 31 percent of medium cities and 29 percent of small cities. Not all benchmarking programs are the same, and cities are developing programs that are palatable to their communities; this could mean supporting voluntary programs (27 cities, compared to 18 in 2018), or establishing mandatory benchmarking requirements (31 cities, compared to 23 in 2018).

In **Los Angeles,** (population 3.9 million) the Existing Building Energy & Water Efficiency ordinance requires all buildings larger than 20,000 square feet to benchmark and publish their annual energy and water use. The ordinance also requires buildings to take efficiency actions at least once every 5 years, such as energy audits or retrofits to reduce energy and water use. The first deadline in July 2017 applied to municipal buildings 7,500 square feet or larger as well as privately owned buildings 100,000 square feet or larger. Building owners that fail to comply are required to pay a fee. The second compliance deadline in April 2018 applied to buildings 50,000 square feet or larger; the last deadline in April 2019 applied to buildings 20,000 square feet or larger.

PARTNERSHIPS

Figure 20. Partnerships to Advance Energy Efficiency Solutions
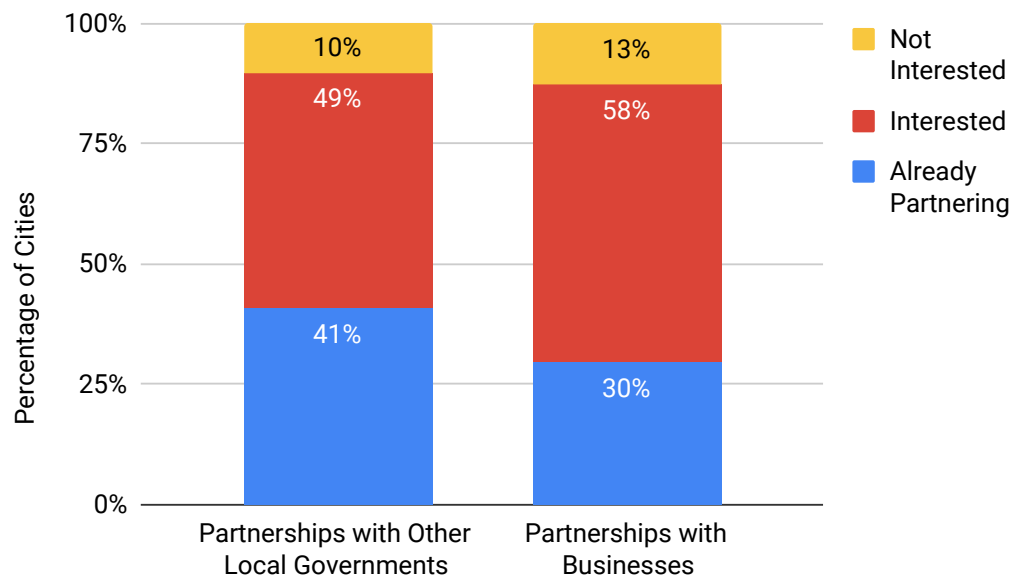
Fifty-eight percent of 159 cities are interested in partnerships with businesses to advance energy efficiency solutions, a practice already underway in 30 percent of responding cities (Figure 20).

What do partnerships to advance efficiency solutions look like? Current activities include participating in sustainability commissions, designating local "green" businesses, and engaging chambers of commerce and utilities. Cities noted many opportunities to establish partnerships that link government-led renewable energy programs with energy efficiency activities; lower the costs and barriers to energy efficiency; develop a revolving fund to allow business easier access to capital for investments; and expand campaigns and programs to target local businesses.

Forty-nine percent of 157 cities are interested in energy efficiency partnerships with other local governments, an approach already underway in 41 percent of responding cities. (Figure 20). New partnerships can follow the approach many cities already take; through regional alliances and councils, peer networks and nationwide initiatives.

DISCUSSION

Cities require energy efficiency standards in municipal buildings and operations more often than in commercial and residential buildings. Efficiency investments and standards for city operations are an opportunity for the city to lead by example and are an easier political decision because they benefit the city's financial health.

To meet the scale of the climate challenge and realize the potential energy savings in the buildings across communities, many cities are promoting and extending efficiency solutions for a broader public benefit. Once again in 2019, policies aimed at new construction appear more often than those for existing buildings, but only slightly.

An emerging community-facing energy efficiency policy is energy benchmarking and disclosure programs. While the policy itself does not ensure energy savings, studies by the U.S. Environmental Protection Agency and Resources for the Future found that benchmarked buildings reduced annual energy use by 2.4 percent and expenditures by 3 percent, respectively. An analysis of buildings in New York City found the policy resulted in annual energy savings of 6-14 percent after three to four years of implementation. Each of these studies indicate a tangible impact on building performance and energy use. Throughout the country, these policies are still in early stages of development and implementation, but they are more common in large cities. Although it is too soon to show any clear trends, it is notable that more cities reported the policy in 2019 than 2018, which may point to increasing comfort and knowledge-sharing among cities.

STRATEGIES & COLLABORATION TO SUPPORT ACTION

GREENHOUSE GAS TRACKING

Cities were asked about practices to inventory GHG emissions. Currently, 76 percent of 167 responding cities track their emissions. 24 percent of cities do not track greenhouse gas emissions; this appears most common among small cities. Among cities that do measure their GHG emissions, the ICLEI ClearPath tool remains the most commonly used tool, with a 47 percent usage rate (60 out of the 127 cities that measure their GHG emissions). A slight majority of cities use other options such as the EPA Local Greenhouse Gas Inventory Tool, the C40 City Inventory Reporting and Information System (CIRIS), and other Excel-based tools created by state and private sector partners, sometimes specifically for a city. Many cities that use other tools noted that their approaches follow the industry standards set out in the GHG Global Protocol for Cities. This protocol outlines common methodologies and facilitates easier comparison among cities.

Figure 21. Cities that Track Greenhouse Gas Emissions

24.0%

76.0%

● Yes   ● No
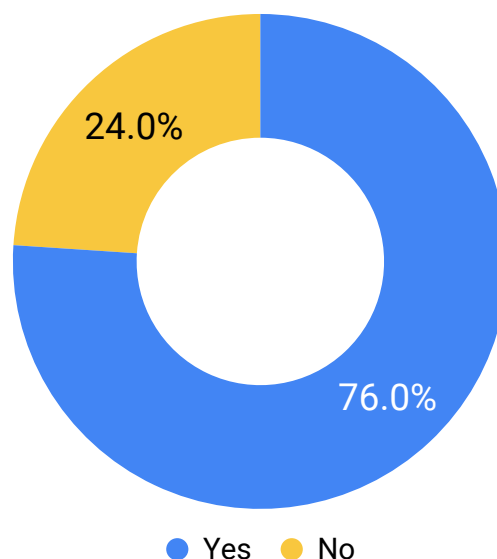
VOLKSWAGEN SETTLEMENT

Out of cities that responded, nearly 91 percent of large cities, 60 percent of medium-sized cities, and 38 percent of small cities have engaged with their state agencies with investment ideas regarding how the money from the Volkswagen settlement should be spent (Figure 22). This might be an indication of cities interest in finding potential new and additional financial resources to help implement solutions that would reduce air emissions and promote more environmentally-sustainable transportation options.

Figure 22: City Engagement with State Officials on VW Settlement

Large Cities

9.3%

90.7%

Medium-Sized Cities

40.5%

59.5%

Small Cities

38.0%

62.0%

● Yes ● No
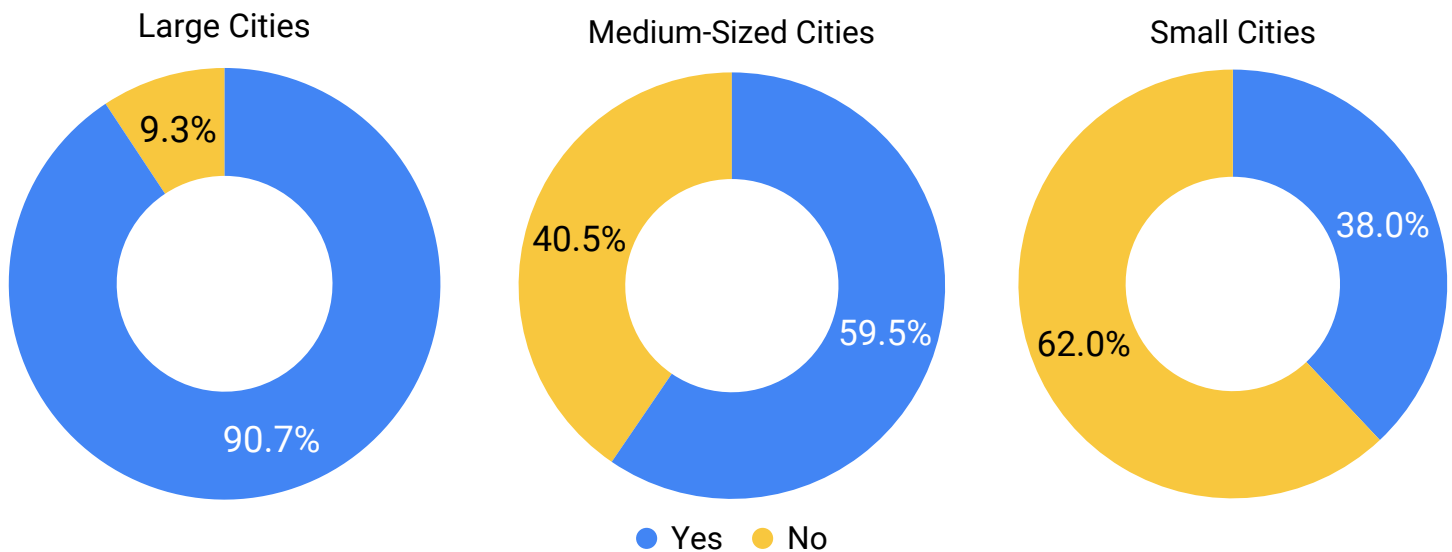
PARTNERSHIPS WITH THE PRIVATE SECTOR

Cities continue to display great interest in partnering with businesses to advance energy efficiency, renewables, and low-carbon transportation (Figure 23), and have offered some direction on what this collaboration could look like. The most common suggestions paint a picture of how businesses can play a role in supporting local climate goals.

The City of **Long Beach** (population 467,354) Energy Leader Partnership (LB ELP) is a local government partnership comprising Southern California Edison and multiple departments from the City of Long Beach. Partnership activities focus on implementing energy efficiency in municipal facilities. The LB ELP identifies project opportunities and secures technical assistance, program opportunities, incentives, and rebates. Through the ELP, participants like Long Beach can access greater incentives from the utility for taking more action. The City of Long Beach is at the beginning stages of a whole-building energy efficiency retrofit for one of its existing buildings and is considering pursuing Zero Net Energy strategies.

A majority of responding cities explained that the private sector could help cities achieve local goals by improving business operations and engaging employees to adopt climate-friendly behaviors. More than a quarter of cities cited needs for more private financing and affordable technical assistance to advance city and local projects. Another major area of opportunity for the private sector: policy engagement, including active participation and support of new local policies and climate action planning, as well as pressure for proactive state policy. Finally, several cities noted their interest in greening the building sector, piloting new technologies and facilitating workforce development in the green economy, three natural in-roads for private sector partnership.

PARTNERSHIPS WITH UTILITIES

Cities were asked to score their partnerships with electric utilities on a scale of 1 to 5 in the areas of renewable electricity, energy efficiency, and low-carbon transportation. On average, cities rated highest their utility partnerships around energy efficiency, with a score of 3.7. Scores for renewables and low-carbon transportation were slightly lower, at 3 and 3.1, respectively. Across all categories, large cities reported slightly better utility partnerships.

These findings are similar to responses in 2017 and 2018, with a slight improvement each year. Further research could determine whether city action on certain issues leads to better relationship scores. For example, data suggests that cities that promote or are considering promoting private installation of EV charging stations report better utility relationship scores on EVs and low-carbon transportation, but establishing a firm correlation was outside the scope of this analysis.

DISCUSSION

Measuring the GHG emissions of city activities over time can provide critical information as cities define reduction strategies and assess their implementation, and many cities undertake this level of internal tracking. When comparing these findings to 2017 responses, when 7 in 10 cities tracked their emissions, it appears that GHG tracking has either become slightly more common, or that more cities that track their emissions participated in 2018. In addition, because the questionnaire does not gather data on the scope of the inventories, some cities that reported emissions tracking practices may have referred to government operations only, while others track emissions for both government and community activities.

Across the board, cities identified an interest in partnering with the private sector to advance solutions in low-carbon transportation, renewable energy, and energy efficiency. For the second year in a row, public private partnerships top the list of actions that cities are interested in pursuing.Through the qualitative responses provided by cities, strong collaborative relationships with utilities in particular appear to be key components of successful climate efforts. This may come as no surprise as utilities are central actors in providing clean energy options, energy efficiency expertise and incentives, and supportive business models and infrastructure for EV charging.

EMERGING TRENDS

For the second year in a row - and with an expanded participant set - nearly every participating city has policies and activities focused on transportation; these include bus transit, bike lanes, and efforts to promote bicycle commuting (Figure 23). GHG emissions tracking, energy audits for municipal operations, and other steps to minimize impact of city operations such as renewable energy purchasing are almost as common.

Figure 23. Most Common City Policies and Activities

Percentage of Cities with Policies and Activities Underway
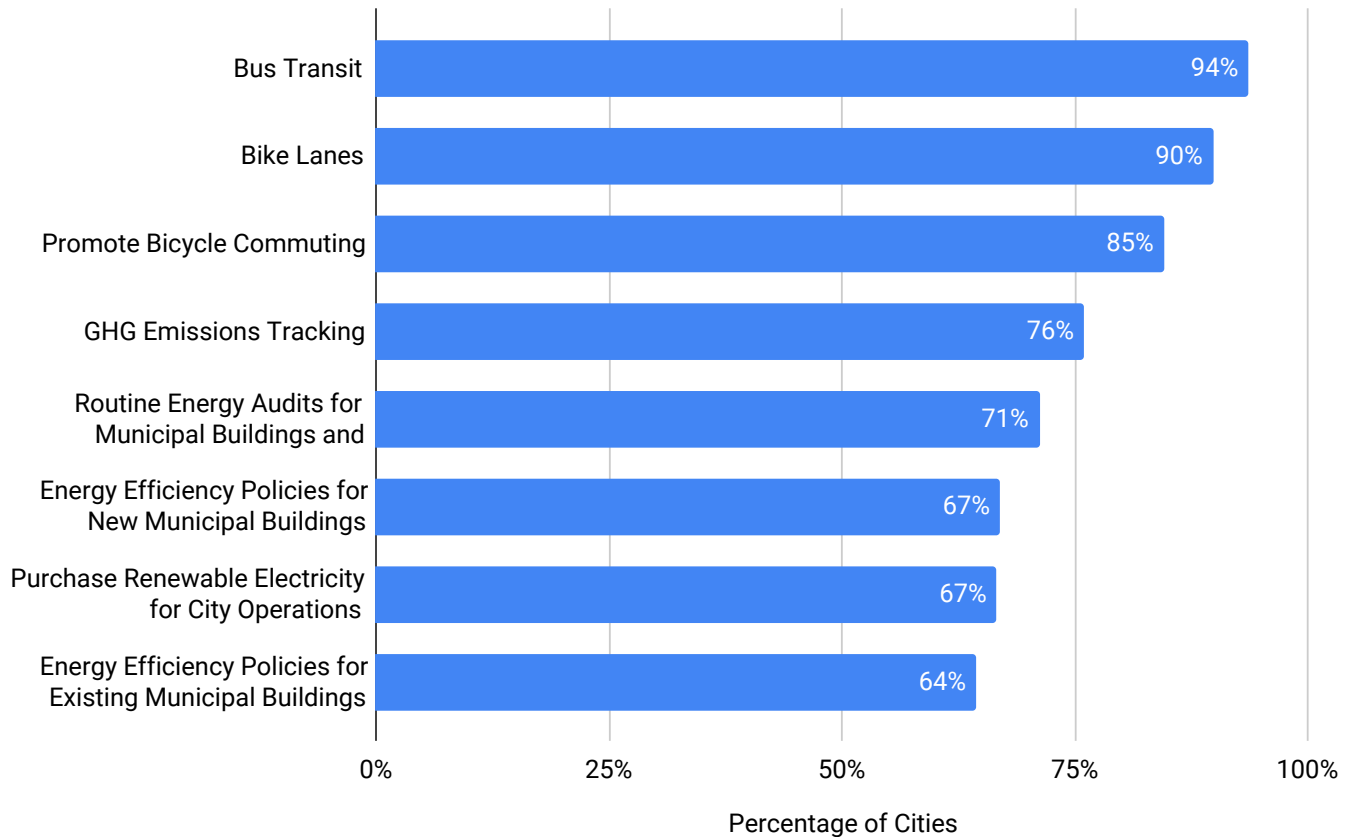
The local policy space is always shifting as new technologies and approaches prove valuable in achieving ambitious goals, leading local leaders to continuously consider new options for their cities. When reviewing the climate actions cities are most interested in, the development of new partnerships with businesses and other local governments across all sector areas once again rises to the top, with public-private partnerships with businesses showing the greatest area of opportunity (Figure 24). Targeted emission reduction strategies, including energy benchmarking programs, installation of private EV charging stations, public EV charging stations, green vehicle procurement policies, and renewable electricity for the government are also under wide consideration.

If acting cities continue their pursuits and others decide to move forward with policies and activities they are considering, we can forecast a future picture of American cities (Figure 25). Regardless of size, the future American city offers citizens bus transit options, EV charging, and bike-friendly streets with bike-share and scooter-share programs. At the center of these cities are energy efficient local governments powered at least in part by renewable energy. These governments leverage public-private partnerships and collaborations with other local governments to test new approaches and advance renewable energy, energy efficiency and low-carbon mobility solutions. Importantly, these governments will pursue this future while facing a number of changing climate impacts.

Figure 24. Areas of Greatest Interest for New Participation

Percentage of Cities Considering or Interested

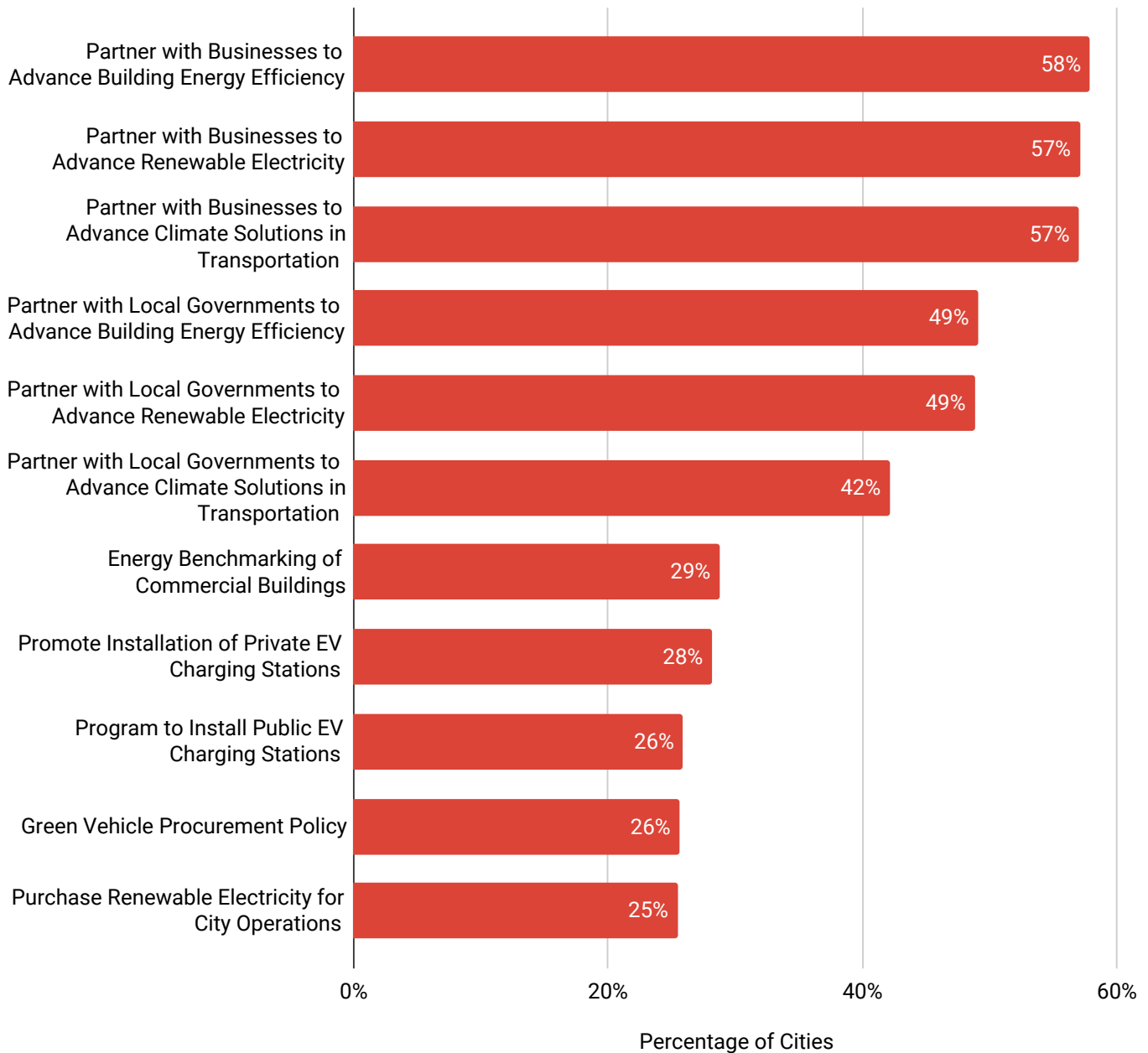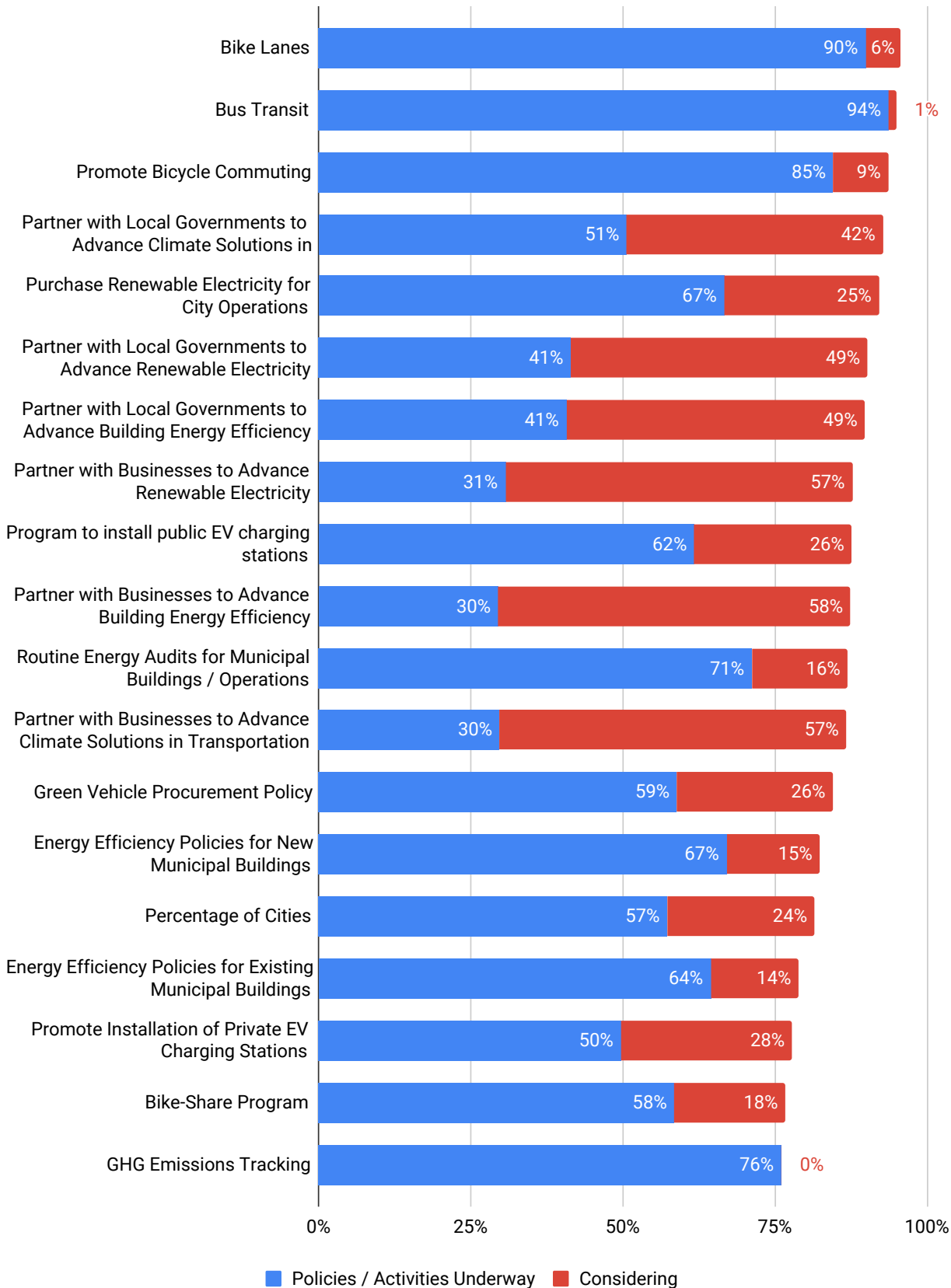| Category	Percentage
Partner with Businesses to Advance Building Energy Efficiency	58%
Partner with Businesses to Advance Renewable Electricity	57%
Partner with Businesses to Advance Climate Solutions in Transportation	57%
Partner with Local Governments to Advance Building Energy Efficiency	49%
Partner with Local Governments to Advance Renewable Electricity	49%
Partner with Local Governments to Advance Climate Solutions in Transportation	42%
Energy Benchmarking of Commercial Buildings	29%
Promote Installation of Private EV Charging Stations	28%
Program to Install Public EV Charging Stations	26%
Green Vehicle Procurement Policy	26%
Purchase Renewable Electricity for City Operations	25%

Percentage of Cities

Figure 25. Potential Future of Climate Solutions in Cities

Most Common Solutions Underway or In Consideration

Solution	Policies / Activities Underway	Considering
Bike Lanes	90%	6%
Bus Transit	94%	1%
Promote Bicycle Commuting	85%	9%
Partner with Local Governments to Advance Climate Solutions in	51%	42%
Purchase Renewable Electricity for City Operations	67%	25%
Partner with Local Governments to Advance Renewable Electricity	41%	49%
Partner with Local Governments to Advance Building Energy Efficiency	41%	49%
Partner with Businesses to Advance Renewable Electricity	31%	57%
Program to install public EV charging stations	62%	26%
Partner with Businesses to Advance Building Energy Efficiency	30%	58%
Routine Energy Audits for Municipal Buildings / Operations	71%	16%
Partner with Businesses to Advance Climate Solutions in Transportation	30%	57%
Green Vehicle Procurement Policy	59%	26%
Energy Efficiency Policies for New Municipal Buildings	67%	15%
Percentage of Cities	57%	24%
Energy Efficiency Policies for Existing Municipal Buildings	64%	14%
Promote Installation of Private EV Charging Stations	50%	28%
Bike-Share Program	58%	18%
GHG Emissions Tracking	76%	0%

Legend: Policies / Activities Underway, Considering

CONCLUSION

In this third installment of the annual Alliance for a Sustainable Future survey, we have captured the activities of a widening set of American communities, from major cities to smaller towns. Although each city size category gained participants this year, the greatest increase was in the small city category – those with populations under 100,000 citizens. Yearly shifts in survey participation such as this may be expected to affect survey results, but the prevalence of policy action and interest for new climate solutions has remained remarkably steady over this time. Year after year, a majority of cities – regardless of size – are setting and implementing policies, programs, and goals that reduce their community's greenhouse gas emissions and promote more sustainable practices at the local level which has a national impact. This recurring finding discounts the notion that climate action is only for large cities.

The survey results bring the power of U.S. cities into focus. Cities remain committed to climate leadership, and they are poised to exercise their market power to accelerate environmentally-friendly technologies. This is most apparent in their purchases of fleet vehicles and energy for government operations. Responding cities reported more than 156,000 fleet vehicles – 34 percent of which are already alternative fuel vehicles – and that they intend to purchase more than 12,000 vehicles in the coming year. Collectively, they spend more than $1.78 billion on electricity to power government operations each year – money that is increasingly moving towards renewable energy sources. If these figures are to serve as an indicator for hundreds of other cities that did not participate in the survey, it is very likely that local government demand for advanced vehicles and clean energy is much higher.

The survey results also point to the limitations cities face and opportunities to overcome them. Despite impressive city leadership, it is also clear that city governments cannot achieve their ambitious climate goals alone. Community energy sources, building stock performance, and the efficiency of the vehicles driven and miles travelled in the city are critical pieces of a city's overall environmental footprint. However, a number of factors – including staff and financial capacity and jurisdictional authorities or lack thereof- limit or slow local leaders' abilities to create transformational change in these areas (although some cities are pioneering policies that could result in such; New York City's new building policy is one example). Other solutions require new infrastructure, financing mechanisms, and broad consumer adoption – some of which that take years to achieve.

In these areas, partnerships with the private sector are critical because businesses provide expertise, capital, and an ability to take on risk to help test new solutions and deploy winning technologies. Support from higher levels of government is also needed – and can come in the form of grant programs, greater policy flexibility for localities, efficiency regulations for manufacturers and buildings, and technical assistance.

A particular area where cities need external support is ensuring resilience to climate change. A staggering 96 percent of cities have experienced recent changes in the frequency and intensity of climate impacts affecting their cities, and the recurring instances of extreme weather that debilitate communities each year underscore the clear vulnerabilities of American communities. While there is considerable city leadership in climate adaptation, states and the federal government are critical to enhancing local resilience initiatives and coordinating more regional approaches to adaptation.

For example, smaller cities might be in earlier adaptation planning stages and need financial and technical support for vulnerability assessments while larger cities that have already developed adaptation plans would benefit from funding for resilience pilot projects. The four out of five respondents that are seeing a change in flooding would benefit from increased federal funds for hazard mitigation planning, continued federal support on green infrastructure, and improved risk mapping. Better-funded and federally coordinated climate science can also give cities a better sense of the conditions to expect in the coming decades as they develop adaptation, hazard mitigation, and comprehensive planning documents. Through aggressive investment and support of adaptation at all levels of government, the United States can get ahead of expensive and sometimes devastating disasters and support thriving local communities.

APPENDICES

APPENDIX A: ABOUT THE ALLIANCE FOR A SUSTAINABLE FUTURE

The Alliance for a Sustainable Future is a collaborative effort between The U.S. Conference of Mayors (USCM) and the Center for Climate and Energy Solutions (C2ES). The Alliance is chaired by Salt Lake City Mayor Jackie Biskupski, with a steering committee of mayors and businesses who are interested in working together to identify, showcase, and develop climate solutions to create more sustainable communities. Central goals of the Alliance are to assess the actions and needs at the city level to help set priorities and identify opportunities, and help cities and businesses strengthen partnerships toward mutual sustainability and climate goals.

APPENDIX B: SURVEY METHODOLOGY

To continue the ongoing efforts from 2017 and 2018, an invitation to complete the online 2019 questionnaire was sent to all mayors who represent cities with populations of more than 30,000 and other service city members of the Conference of Mayors, numbering more than 1,400 cities in total in June 2019. By the August 2019, 182 cities from 39 states (in addition to the District of Columbia, see Appendix C) had provided answers to all or part of the questionnaire. All participating cities from the 2017 and 2018 survey were invited to update their responses or allow the use of previously submitted answers if there were no significant changes (approximately 7 cities who submitted data in 2017 did not update their responses, nor verify that their responses have not changed significantly; their data was removed from the 2019 data set). Responding cities represent a broad geography and range in size from 1,285 (Somerset, Maryland) to 8.6 million (New York City), and collectively represent more than 55 million Americans. This questionnaire will be sent out again in 2020 to continue monitoring city efforts towards increasing their energy efficiency and sustainability efforts.

The 2019 questionnaire matches the 2018 questionnaire, which was expanded to clarify issue areas and gather pertinent information regarding climate impacts, transportation modes and fleet profiles, and partnerships.

To calculate participation percentages, total responses for each question were used as the denominator, rather than the entire 182 cities that completed the questionnaire. This choice removes non-answers (blank responses) from the response pool. Accordingly, each percentage represents the set of cities that directly and intentionally answered the relevant question. For example, 151 of the 182 participating cities answered the question "Is the city interested in partnering with businesses to advance climate solutions in transportation?", 67 of them affirmatively. Therefore, 67 was divided by 151 to determine that 44 percent of participating cities are interested in partnering with businesses for transportation solutions. The results of this survey are not intended to evaluate the effectiveness of programs at the city level or the statistical relationships between policies and outcomes.

City data was grouped based on population size to identify differences in policy implementation due to differing available resources. Continuing the practice of previous annual analyses, the cities were grouped as follows: Small Cities: <100,000 citizens; Medium-Sized Cities: 100,000-250,000 citizens; and Large Cities: >250,000 citizens. Using these delineations, 90 cities qualify as "small" and represent 5.4 million citizens, while the 45 "medium-sized" cities represent 7.4 million citizens, and the 47 "large" cities cover 43 million residents.

APPENDIX C: PARTICIPATING CITIES

Alameda, CA	Culver City, CA	Lansing, MI	Richmond, VA
Albuquerque, NM	Dayton, OH	Largo, FL	Riverbank, CA
Alexandria, VA	Deltona, FL	Las Cruces, NM	Rochester, NY
Alhambra, CA	Denver, CO	Las Vegas, NV	Rochester Hills, MI
Anchorage, AK	Des Moines, IA	Laurel, MD	Saint Louis, MO
Arlington, TX	Doral, FL	Lima, OH	Salt Lake City, UT
Asheville, NC	Dublin, CA	Little Rock, AR	San Antonio, TX
Aspen, CO	Dubuque, IA	Long Beach, CA	San Francisco, CA
Atlanta, GA	Duluth, MN	Los Angeles, CA	San Jose, CA
Aurora, IL	Durham, NC	Louis Park, MN	San Leandro, CA
Austin, TX	Easton, PA	Louisville, KY	San Marcos, TX
Avondale, AZ	East Hartford, C	Macon, GA	San Rafael, CA
Baltimore, MD	Eden Prairie, MN	Madison, WI	Santa Ana, CA
Baton Rouge, LA	Edina, MN	Manhattan Beach, CA	Santa Barbara, CA
Beaverton, OR	Egg Harbor Township, NJ	Margate, FL	Santa Fe, NM
Bethlehem, NY	Elizabeth, NJ	Mesa, AZ	Santa Monica, CA
Bethlehem, PA	Encinitas, CA	Miami, FL	Schaumburg, IL
Beverly, MA	Erie, PA	Miami Beach, FL	Schenectady, NY
Beverly Hills, CA	Eugene, OR	Mooresville, NC	Seattle, WA
Birmingham, AL	Evanston, IL	Napa, CA	Sheboygan, WI
Bloomington, IN	Everett, WA	Nashua, NH	Shreveport, LA
Boise, ID	Everett, MA	Nashville, TN	Somerset, MD
Boston, MA	Fairfield, CT	New Bedford, MA	South Bend, IN
Bonita Springs, F	Fayetteville, AR	New York, NY	Stratford, CT
Boulder, CA	Fontana, CA	Newark, CA	Sunrise, FL
Bridgeport, CT	Fort Collins, CO	Newark, NJ	Syracuse, NY
Brookhaven, GA	Fort Myers, FL	Newport News, VA	Tacoma, WA
Buffalo, NY	Framingham, MA	Newton, MA	Tamarac, FL
Burnsville, MN	Franklin Township, NJ	Normal, IL	Tempe, AZ
Camden, NJ	Fremont, CA	North Port, FL	Toledo, OH
Carmel, IN	Gary, IN	Oakland, CA	Topeka, KS
Carson, CA	Gastonia, NC	Oklahoma City, OK	Torrance, CA
Central Falls, RI	Grand Rapids, MI	Orlando, FL	Village of Hazel Crest, IL
Charleston, SC	Gresham, OR	Pembroke Pines, FL	Walnut Creek, CA
Charlotte, NC	Hallandale Beach, FL	Petersburg, FL	Washington, DC
Chattanooga, TN	Hanover Park, IL	Phoenix, AZ	Waukesha, WI
Chicago, IL	Henderson, NV	Pinellas Park, FL	West Hollywood, CA
Chula Vista, CA	Hermosa Beach, CA	Pittsburg, PA	West Palm Beach, FL
Clarkesville, TN	Honolulu, HI	Plano, TX	West Sacramento, CA
College Park, MD	Houston, TX	Port Saint Lucie, FL	Westland, MI
Columbia, SC	Iowa City, IA	Portland, OR	Weston, FL
Columbia, MO	Kansas City, MO	Queen Creek, AZ	Winston-Salem, NC
Columbus, OH	Kissimmee, FL	Raleigh, NC	Woodland, CA
Concord, CA	Knoxville, TN	Redmond, WA	
Coral Springs, FL	Lake Worth Beach, FL	Reno, NV	
Corvallis, OR	Lambertville, NJ	Revere, MA	

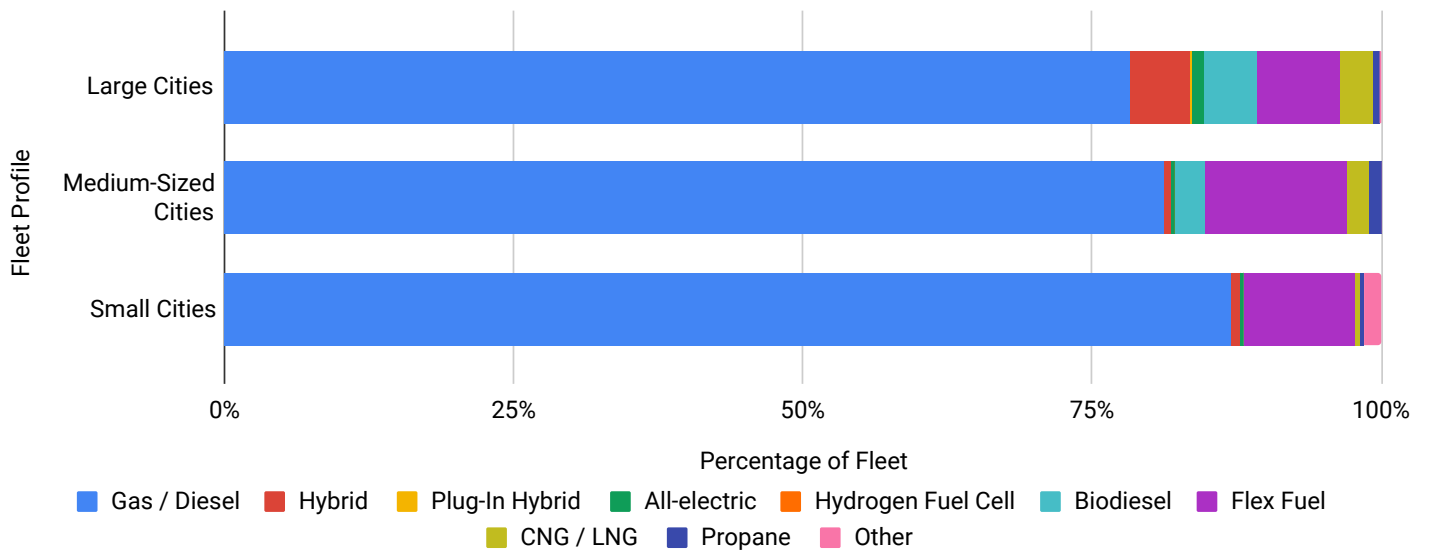## Map of Participating Cities

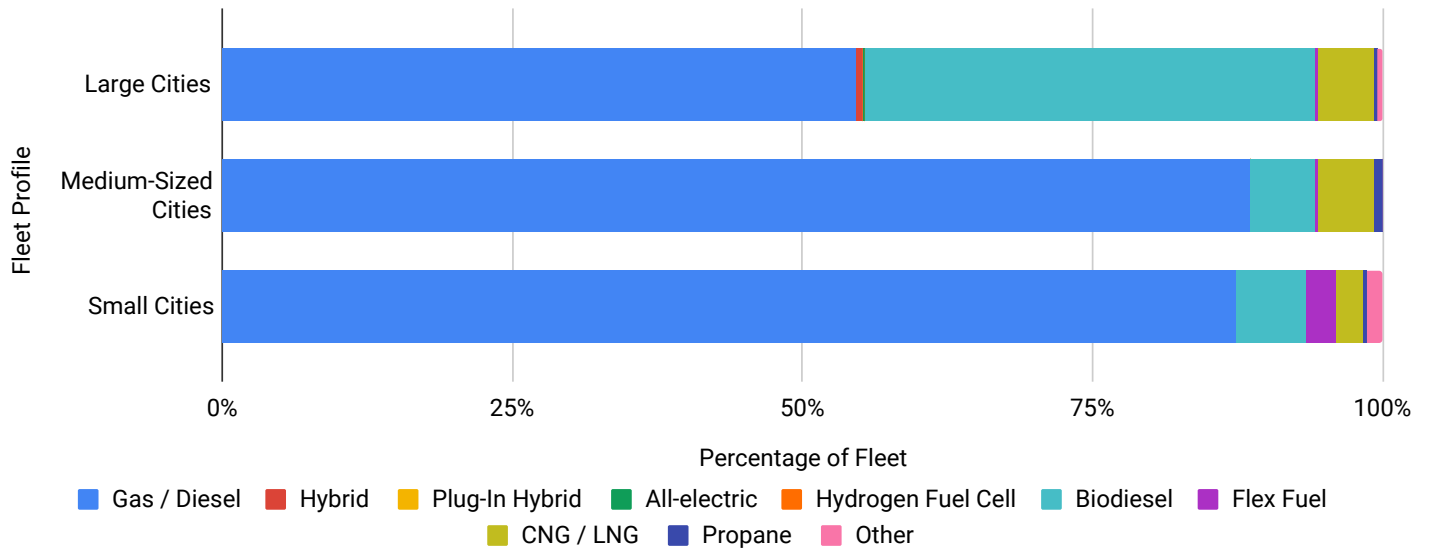# APPENDIX D: ADDITIONAL FIGURES

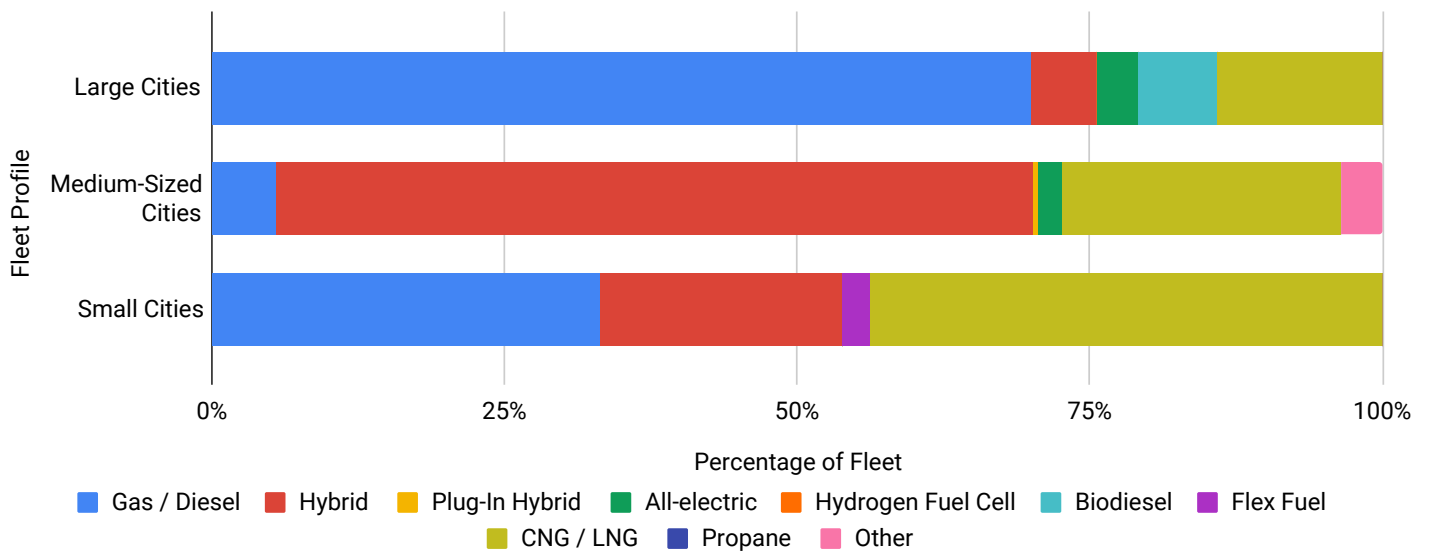## Passenger Car Fleet Makeup by City Size
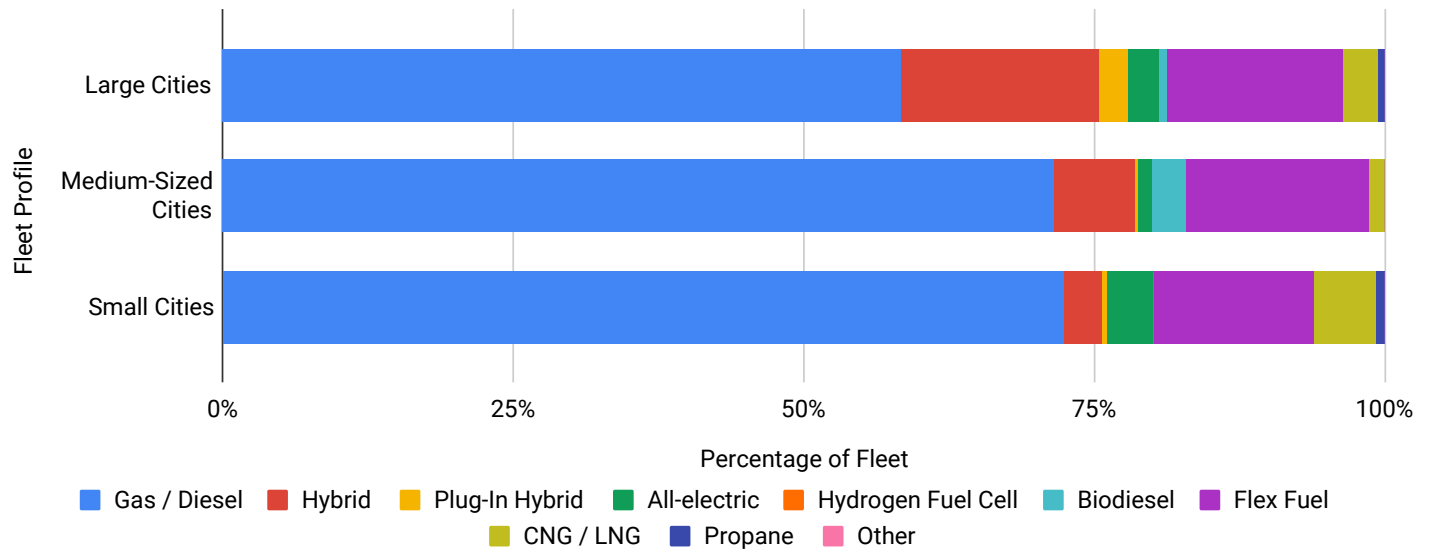
Light-Duty Fleet Makeup by City Size

Medium- and Heavy-Duty Fleet Makeup by City Size

Bus Fleet Makeup by City Size