



Mayors Leading the Way on Climate

How Cities Large and Small are Taking Action

2018

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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About The U.S. Conference of Mayors: The U.S. Conference of Mayors is the official nonpartisan organization of cities with populations of 30,000 or more. There are nearly 1,400 such cities in the country today, and each city is represented in the Conference by its chief elected official, the mayor. Learn more at www.usmayors.org.



About C2ES: The Center for Climate and Energy Solutions (C2ES) is an independent, nonpartisan, nonprofit organization working to forge practical solutions to climate change. Our mission is to advance strong policy and action to reduce greenhouse gas emissions, promote clean energy, and strengthen resilience to climate impacts. Learn more at www.c2es.org.

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TABLE OF CONTENTS

FOREWORD1

BY THE NUMBERS..... 2

EXECUTIVE SUMMARY..... 4

INTRODUCTION 7

SURVEY RESULTS..... 8

CLIMATE IMPACTS AFFECTING CITIES 8

NEW ACTION..... 9

TRANSPORTATION 9

 MUNICIPAL FLEETS..... 9

 COMMUNITY TRANSPORTATION..... 12

RENEWABLE ENERGY.....13

 ELECTRICITY FOR MUNICIPAL OPERATIONS13

 ELECTRICITY FOR THE COMMUNITY.....15

ENERGY EFFICIENCY16

 POLICIES FOR MUNICIPAL BUILDINGS16

 POLICIES FOR COMMERCIAL AND RESIDENTIAL BUILDINGS17

STRATEGIES & COLLABORATION TO SUPPORT ACTION19

 TRACKING GREENHOUSE GAS EMISSIONS.....19

 PARTNERSHIPS WITH THE PRIVATE SECTOR19

 PARTNERSHIPS WITH UTILITIES..... 20

DISCUSSION..... 21

CONCLUSION..... 27

APPENDIX 1: METHODOLOGY 28

APPENDIX 2: PARTICIPATING CITIES 29

 Map of Participating Cities 30

APPENDIX 3: ADDITIONAL FIGURES31



FOREWORD

The federal government's leadership role in addressing climate change has greatly diminished, from the announced withdrawal from the Paris Agreement to the example set by recent domestic actions to freeze vehicle standards and rollback power sector targets. This is unfortunate and has real consequences, coinciding 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 property loss and damage from recent, severe weather events enhanced by our changing climate is in the hundreds of billions of dollars, and have caused significant loss of life. Hurricanes Harvey, Irma, and Maria are just three examples. In just one week this 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 burned throughout most of August, destroying more than a thousand homes and leaving several dead.

In the absence of federal action and a comprehensive climate policy, cities and businesses are continuing to demonstrate leadership. The Alliance has worked to establish a system for collecting data on what cities are doing in the arenas of low-carbon energy, alternative-fuel vehicles, and energy efficiency in buildings, compiling the information to be shared with other cities and encourage action. This information will also provide valuable data to policy makers at all levels of government.

Renewable energy, energy efficiency, and low-carbon vehicles 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 2018 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 covers 158 communities. 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.



Steven K. Benjamin
Mayor of Columbia
President, The U.S. Conference of Mayors



Tom Cochran
CEO and Executive Director
The U.S. Conference of Mayors



Jackie Biskupski
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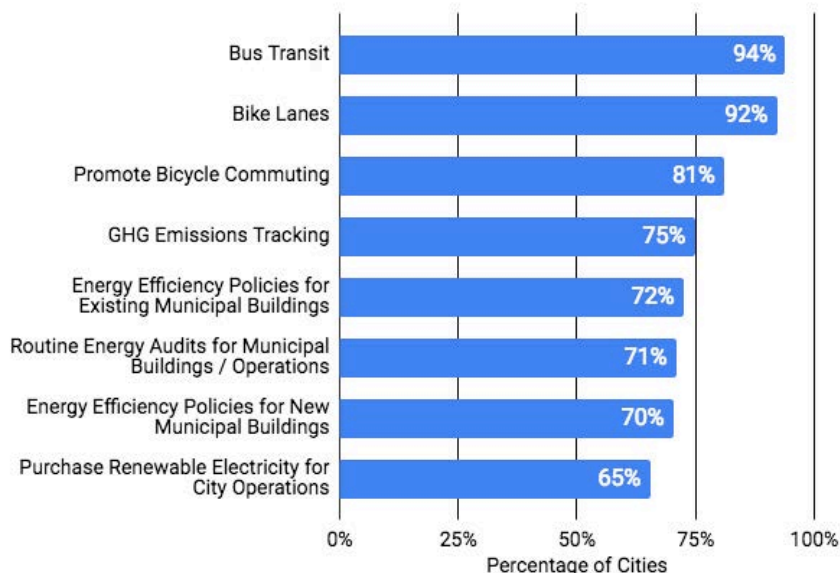
BY THE NUMBERS

Cities are not slowing down in their drive toward sustainability and climate action. As we look toward the next critical decade the survey results show significant opportunity to continue turning city leadership into even more action and results. This is a critical observation as we look to keep cities healthy and America moving on its global climate commitments.

- **158 cities** participated, including all 102 respondents to the 2017 survey.
- **95%** of cities have experienced a change related to at least one climate impact in the past five years, with most experiencing more.
- **60%** of cities have launched or significantly expanded a climate initiative or policy in the last year.
- **More than 80%** of new municipal vehicle purchases will be made in cities with a green vehicle purchasing policy.
- **Bike-share** and **scooter-share** services are the most commonly cited new transportation options cities are considering.
- **65%** of cities procure renewable electricity for municipal operations.
 - **27** cities cover 30% or more of city government electricity needs through renewable sources - an apparent increase from 2017 results.
 - **8** cities cover all their electricity needs with renewable sources.
- **More than 70%** of cities have energy efficiency policies for new and existing municipal buildings.
- **More than 83%** of cities are looking to the business community for support in advancing transportation, renewable energy, and energy efficiency solutions.
 - **More than 55%** of cities are interested in joining the **28-32%** of cities that already partner with businesses in pursuit of these solutions.

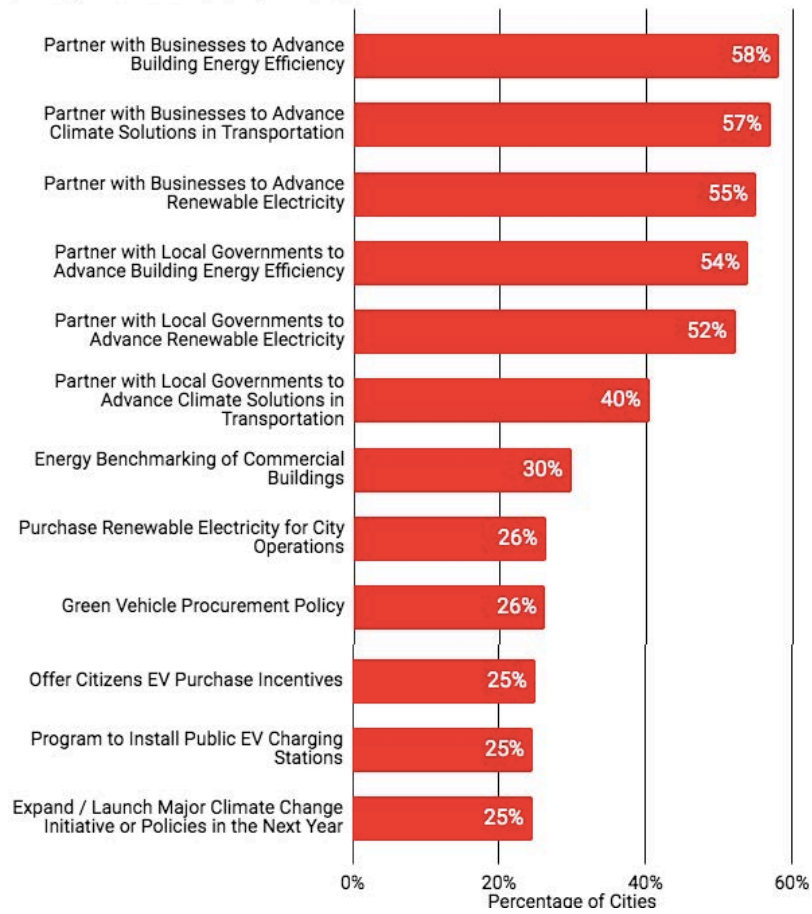
Most Common Policies and Activities

Percentage of Cities With Policies and Activities Underway



Areas of Greatest Interest for New Participation

Percentage of Cities Considering or Interested



EXECUTIVE SUMMARY

The U.S. Conference of Mayors and the Center for Climate and Energy Solutions have established an alliance to help cities and businesses strengthen partnerships toward mutual sustainability and climate goals. A central part of the work is to assess the actions and needs at the city level to help set priorities and identify opportunities. 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 150 American cities provide a snapshot of local action and potential.

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. Last year, American cities, states, businesses, and other institutions including universities and hospitals, took on a greater leadership role, embracing a responsibility to address the high stakes for their citizens, employees, and business sustainability. 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.

CITIES ARE FEELING CLIMATE IMPACTS AND ACTING

- 95 percent of cities have experienced 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 (76 percent of cities), heat waves (65 percent), and drought (51 percent). Additionally, an alarming 18 percent identified wildfires as a changing impact.
- Over the last 12 months, 60 percent of cities have launched or significantly expanded a climate initiative or policy, and this pace is expected to continue in the coming year.

CITIES ARE TAKING ON TRANSPORTATION EMISSIONS

- Cities are addressing the second largest source of greenhouse gas emissions by adopting alternative fuel vehicles into municipal fleets. Large cities in particular lead in the adoption of hybrid and all-electric 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 80 percent of new municipal vehicle purchases will be made in cities with a green vehicle purchasing policy, indicating significant potential for low-carbon fleets in the future.
- Cities are evaluating an expanding slate of transportation choices, with bike-share and scooter-share services as the most commonly cited options under consideration.
- Importantly, 57 percent of cities have a policy or program for public electric vehicle (EV) charging stations, with an additional 22 percent considering such action. This shows an interest in providing the infrastructure necessary for clean vehicle deployment.

CLEAN AND RENEWABLE ENERGY ARE A GROWING PRIORITY

- More than half of cities (54 percent) have a renewable energy goal, and an additional 18 percent are considering setting a goal.
- 65 percent of responding cities currently procure renewable electricity for municipal operations. 27 cities cover 30 percent or more of city government needs through renewable sources, an apparent increase from 2017 results. 8 cities cover all their needs with renewable sources.
- 51 percent of cities help citizens and businesses adopt renewable electricity options. An additional 13.5 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 PROMOTING EFFICIENT BUILDINGS

- A majority of city governments have energy efficiency policies for new and existing municipal buildings (70 percent and 72 percent, respectively). In addition, more than half have policies or incentives for new and existing commercial and residential buildings.
- 23 percent of cities support or require energy benchmarking of commercial buildings, an emerging local policy strategy.

THERE ARE CLEAR INDICATIONS OF GROWING OPPORTUNITY FOR VITAL PARTNERSHIPS

- 90 percent or more of cities are partnering or interested in partnering with other local governments in pursuit of transportation, renewable energy, and energy efficiency solutions.
- More than 83 percent of cities are partnering or interested in partnering with businesses in pursuit of transportation, renewable energy, and energy efficiency solutions.
- On a scale of 1 to 5, with 5 being excellent, cities rated highest their utility partnerships around energy efficiency, with a score of 3.7. Partnership scores for renewables and low-carbon transportation were slightly lower, both scoring 3 out of 5.
- The private sector and nonprofit community are playing a vital role in supporting local leaders. Cities report strong collaborations already 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 broader implementation, a strategy the Alliance for a Sustainable Future is designed to facilitate.



INTRODUCTION

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 made up of mayors and businesses who are interested in working together to identify, showcase, and develop climate solutions to create more sustainable communities.

The Alliance is chaired by Salt Lake City Mayor Jackie Biskupski with a steering committee made up of mayors and members of the business community. As part of the Alliance's ongoing work plan, mayors across the country were asked about their city's sustainability efforts in the areas of low-carbon transportation, energy efficiency in new and existing buildings, and low-carbon emitting electricity. This is the second year of this ongoing questionnaire, aimed at developing a baseline of city efforts, determining innovative practices in these areas, identifying trends, and defining areas where additional technical assistance may be needed.

The questionnaire was sent in July 2018 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. The 2018 questionnaire was expanded to clarify issue areas and gather pertinent information regarding climate impacts, transportation modes and fleet profiles, and partnerships. The 102 cities that responded in 2017 were asked to update their information, and nearly all did so. The remaining few who did not provide updated numbers gave permission to use their 2017 data. By August 6, 2018, 158 cities from 39 states had provided answers to all or part of the questionnaire (see Appendix 2), representing a 55 percent increase in participation over 2017. Responding cities represent a broad geography and range in size from 3,906 (Lambertville, NJ) to 8.5 million (New York City), and collectively represent more than 50 million Americans. This questionnaire will be sent out annually to monitor city efforts to support local climate and sustainability efforts.

City Population	Size Designation	Number of Responding Cities
Under 100,000	Small	75
100,000-250,000	Medium	40
Greater than 250,000	Large	43

SURVEY RESULTS

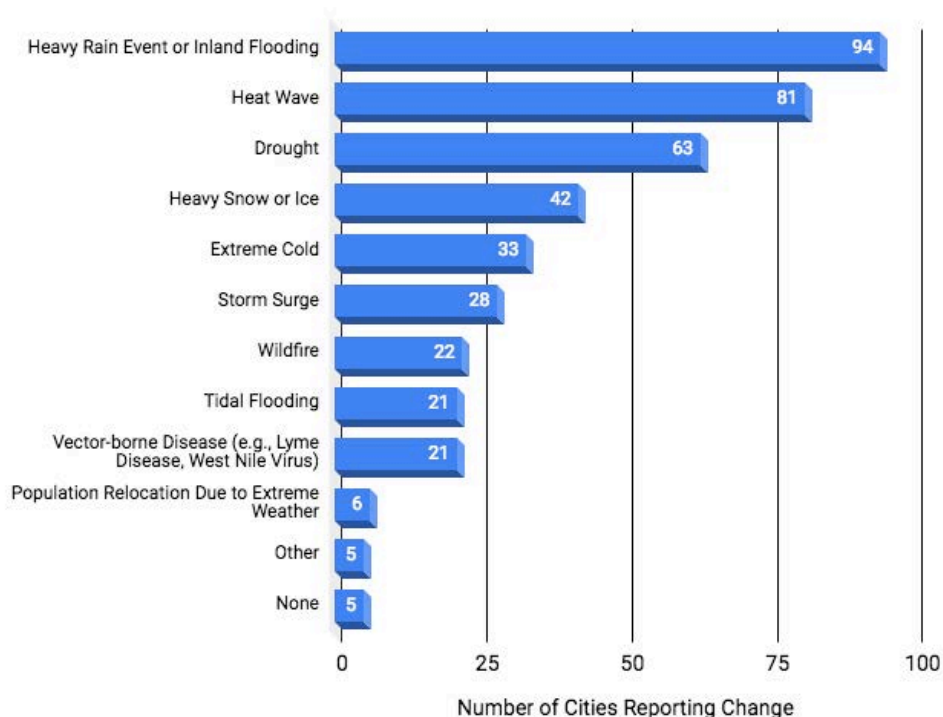
CLIMATE IMPACTS AFFECTING CITIES

According to the National Oceanic and Atmospheric Association, 2017 was the third-warmest year globally since record-keeping began 138 years ago, behind 2016 and 2015. This warming and the associated climate changes are expected to be felt at the local level; indeed there are indications this is already happening. Cities were asked to identify climate impacts that have changed in frequency, intensity, or in different areas than in the past five years, a timeframe of 2012-2017.

Out of 119 cities that provided responses, 95 percent indicated they had experienced a change to at least one climate impact (Figure 1). The most prevalent changes cities reported included heavy rain events or inland flooding (76 percent of cities), heat waves (65 percent), and drought (51 percent). Less prevalent, but still common changes cited included heavy snow or ice (34 percent), extreme cold (27 percent), storm surge (23 percent), wildfire (18 percent), tidal flooding (17 percent), and vector-borne diseases (17 percent). Several cities noted population relocation due to extreme weather (5 percent) and changes in wind storms (less than 3 percent). Just 5 percent of 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. Cities cited an average of 3.5 changing impacts in the five-year time period, with large cities noting more (4) than their smaller counterparts (3) on average.

Figure 1. Cities Experiencing Changing Climate Impacts in the Past Five Years
Changing Frequency, Intensity, or Location



NEW ACTION

Over the last 12 months 60 percent of cities have launched or significantly expanded a climate initiative or policy. New local climate efforts vary broadly in their focus and scope. For example, one city has recently adopted building ordinances that ensure sufficient electric vehicle charging infrastructure in new development. Some have joined Community Choice Aggregation (CCA) programs to secure alternative energy for local customers, while others have conducted extensive community outreach and established energy efficiency incentives for employees.

This momentum is expected to continue; in the next year, 57 percent of cities are planning to launch new climate policies and initiatives, and an additional 25 percent of cities are considering new action.

TRANSPORTATION

Vehicles contribute significantly to air pollution and greenhouse gas emissions. In fact, for some cities, vehicles make up more than 40 percent of their greenhouse gas emissions. Given this, many cities are exploring alternative fuel vehicles for their city fleets and promoting alternative transportation options for their community. Survey questions on transportation focused on the numbers and types of vehicles that make up city fleets and whether cities purchase alternative fuel vehicles for their municipal fleets. The survey also gathered data on city programs and policies supporting electric vehicle (EV) deployment and alternative modes of transport.

MUNICIPAL FLEETS

GREEN VEHICLE PROCUREMENT POLICIES

Nearly 60 percent of city governments have green vehicle purchasing policies, with an additional 26 percent considering such action. When broken down by city size, nearly 75 percent of large cities and nearly half of medium cities have the policies in place, compared with 55 percent of small cities.

Together, cities annually purchase or lease nearly 5,000 municipal passenger cars, nearly 4,000 light-duty vehicles, nearly 3,000 medium- and heavy-duty vehicles, and a little more than 1,000 buses. For each vehicle class, more than 80 percent of these new purchases will be made in cities with a green vehicle purchasing policy.

FLEET PROFILES

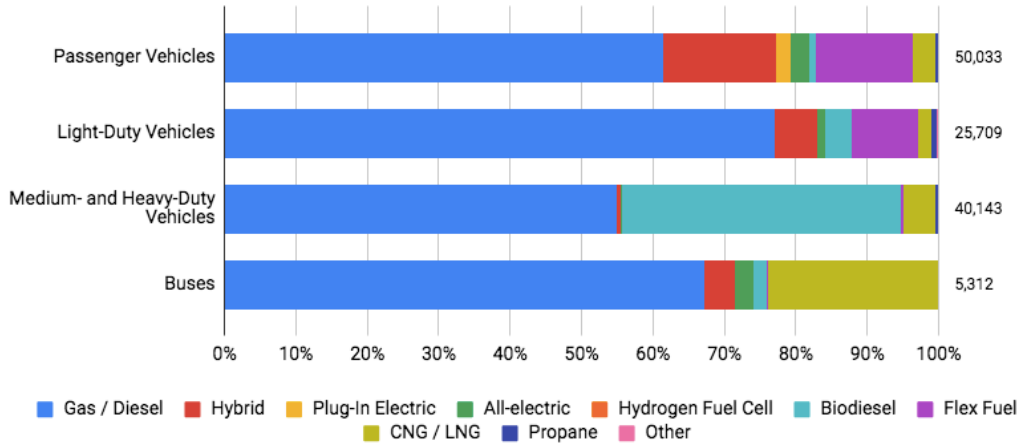
Gasoline and diesel vehicles make up more than half of all four classes of municipal vehicle: passenger cars, light-duty, medium- and heavy-duty, and buses (Figure 2). Given that 80 percent of new purchases will be made in cities with a green vehicle purchasing policy, this may accelerate the move away from gasoline and diesel, as more alternative fuel vehicles become available.

Anchorage hired its first energy and sustainability manager in 2018 to propel the energy opportunities identified in the Anchorage Energy Landscape and Opportunities Analysis completed in May 2017.

In **Baltimore**, the Office of Sustainability is partnering with local organizations in the city's most vulnerable neighborhoods to develop resilience hubs. The hubs will remain open during times of major emergencies and will be equipped with solar and battery storage. The program is being developed by city agencies and is guided by the Office of Sustainability's Disaster Preparedness Plan. Community partners agree to work together to ensure that residents are provided with the resources and support to plan for, respond to, and recover from hazard events (many of which are climate related).

Figure 2. 2018 Municipal Fleet Profile

Total Vehicle Numbers at Right



Although gasoline / diesel is the majority fuel for all vehicle classes there are notable differences in secondary fuel choices within each vehicle class (Figure 2). For example, 16 percent of municipal passenger vehicles are hybrids, while 9 percent of light-duty vehicles are flex fuel, 39 percent of medium- and heavy-duty vehicles are biodiesel, while 24 percent of buses are compressed natural gas (CNG) or liquid natural gas (LNG). How these fuels break down according to city size yields additional insights and can be found in Appendix 3.

A deeper analysis of the data shows that the presence of alternative-fuel vehicles in city fleets appears to align with cities that have green vehicle procurement policies (Figures 3, 4, 5, and 6). Furthermore, the vast majority of municipal vehicles reported by participating cities are those in cities with green procurement policies.

Figure 3. Passenger Fleet Profiles

Total Reported Vehicles at Right

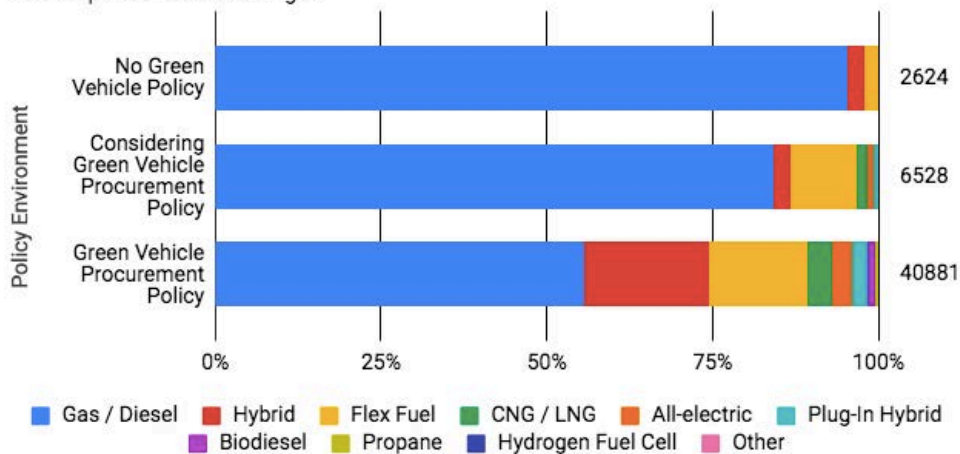


Figure 4. Light-Duty Fleet Profiles

Total Reported Vehicles at Right

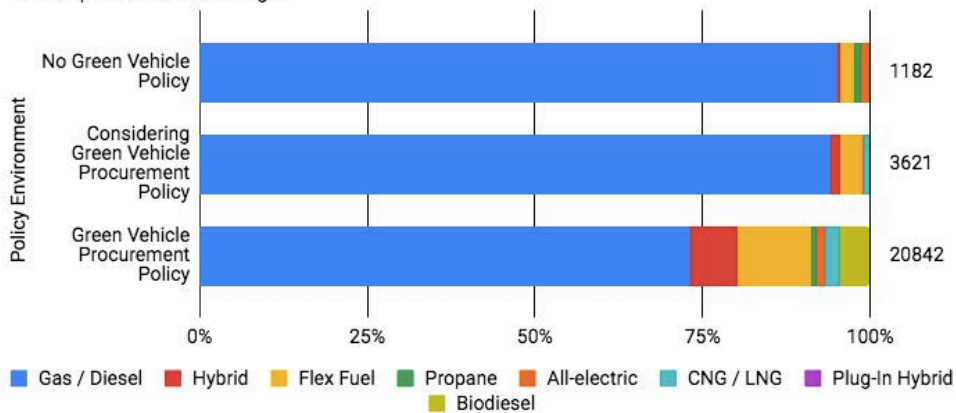


Figure 5. Medium- and Heavy-Duty Fleet Profiles

Total Reported Vehicles at Right

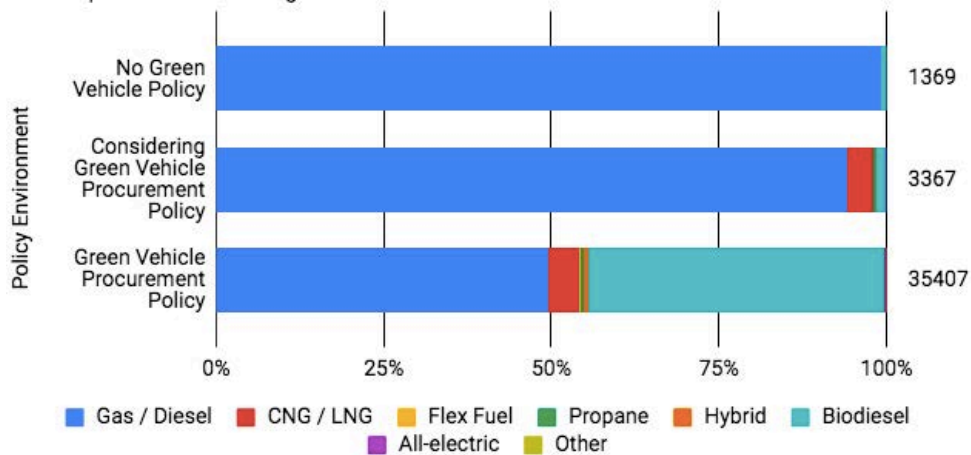
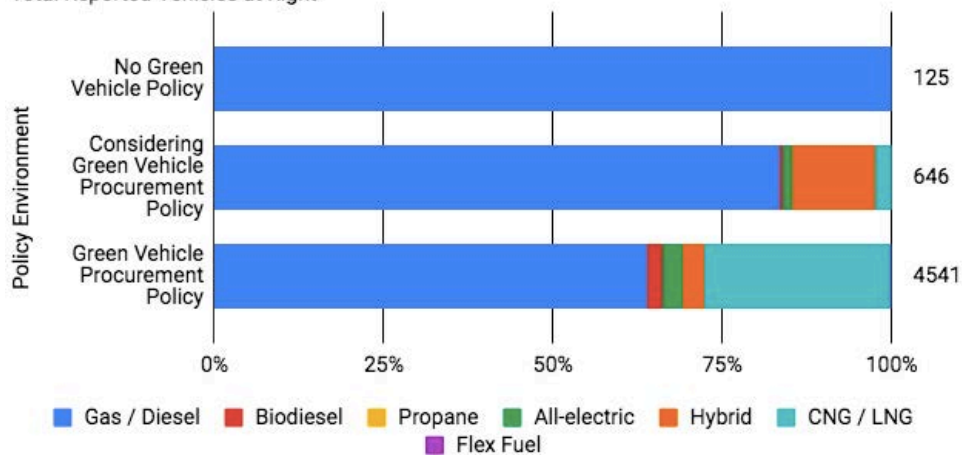


Figure 6. Bus Fleet Profiles

Total Reported Vehicles at Right

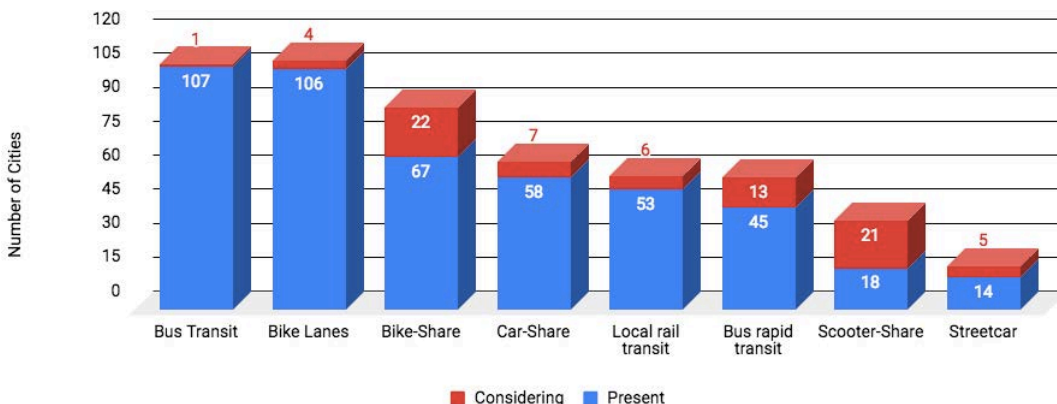


COMMUNITY TRANSPORTATION

ALTERNATIVE MODES OF TRANSPORTATION

The most common way cities promote alternative transportation is through bus transit systems and bike lanes, with more than 100 cities reporting the presence of each (Figure 7). While local rail transit, bus rapid transit, bike-share and car-share services are found in cities of all sizes, they are far more common in large cities. Scooter-shares, a recently introduced service, are reported in 18 responding cities—mostly those with populations greater than 400,000.

Figure 7. Transportation Options In Cities



When reviewing opportunities to provide new modes of transportation, bike-share and scooter-share services are the most commonly cited options under consideration. Medium and small cities are more commonly considering bike-share services, while more large cities are considering scooter-share services.

INCENTIVIZING COMMUNITY ADOPTION OF ELECTRIC VEHICLES

Charging Infrastructure

Public and private charging infrastructure is vital to a functioning electric vehicle network. Fifty-seven percent of cities have a policy or program for public electric vehicle (EV) charging stations, with an additional 22 percent considering such action. One in five cities does not have a policy or program to install public charging infrastructure but these are mostly smaller-sized cities.

Nearly half of cities (49 percent) have policies or programs that promote private charging infrastructure, and an additional 20 percent are considering such action.

EV Incentives for Citizens

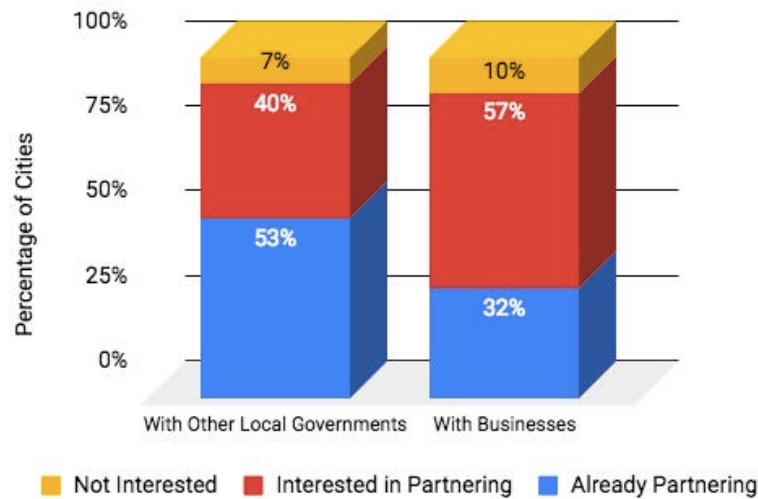
Thirty-seven cities (25 percent) are considering offering incentives for citizens to purchase their own electric vehicles, a benefit already in place in 15 cities, half of which are in California.

PARTNERSHIPS

Ninety-three percent of cities are either interested in partnering or are already partnering with other local governments in pursuit of transport solutions. Similarly, 90 percent of cities are partnering or interested in partnering with local businesses (Figure 8). This means that opportunities to form partnerships are widespread and, when compared with 2017 results, it is clear that interest in partnerships remains high.

Buffalo regularly collaborates with local public transit service provider, Niagara Frontier Transportation Authority, and the metropolitan planning organization, Greater Buffalo Niagara Regional Transportation Council, on issues of climate change adaptation and mitigation, specifically focused on route and service efficiency, ridership, and advanced technologies. Erie and Niagara Counties are also representatives integral to these conversations.

Figure 8. Partnerships to Advance Transportation Solutions



RENEWABLE ENERGY

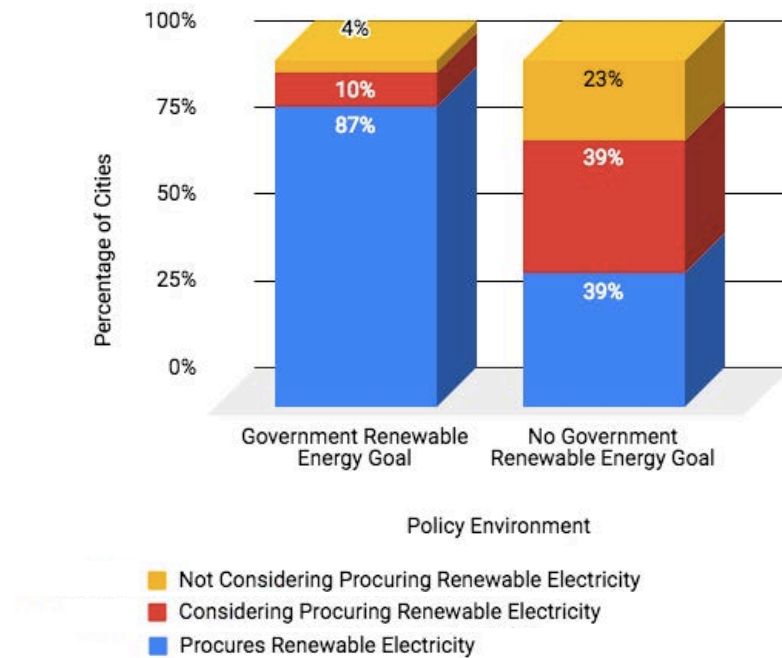
Energy costs represent a substantial expense for city governments. **Together, 106 responding cities spend more than \$1.6 billion annually on electricity.** For cities pursuing emission reductions goals, fuel sources for electricity generation also represent an area of opportunity. The questionnaire requested information about municipal and city-wide targets for renewable electricity as well as procurement and policy approaches.

ELECTRICITY FOR MUNICIPAL OPERATIONS

More than half of cities (54 percent) have a renewable electricity goal, and an additional 18 percent are considering setting a goal. While the targets vary in ambition, cities appear to share common strategies to meet them. Based on written responses, cities expect to achieve their goals largely through a mix of on-site renewable energy generation, renewable energy certificates (RECs), and power purchase agreements (PPAs).

Nearly 90 percent of the cities that have a government renewable energy target also procure renewable electricity (Figure 9), with an additional 10 percent interested in procuring it. Cities without a renewable energy target are almost evenly split between active procurement (39 percent), considering (39 percent), and not procuring (23 percent). This appears to indicate that setting a renewable energy goal encourages the follow-through of purchasing renewable energy.

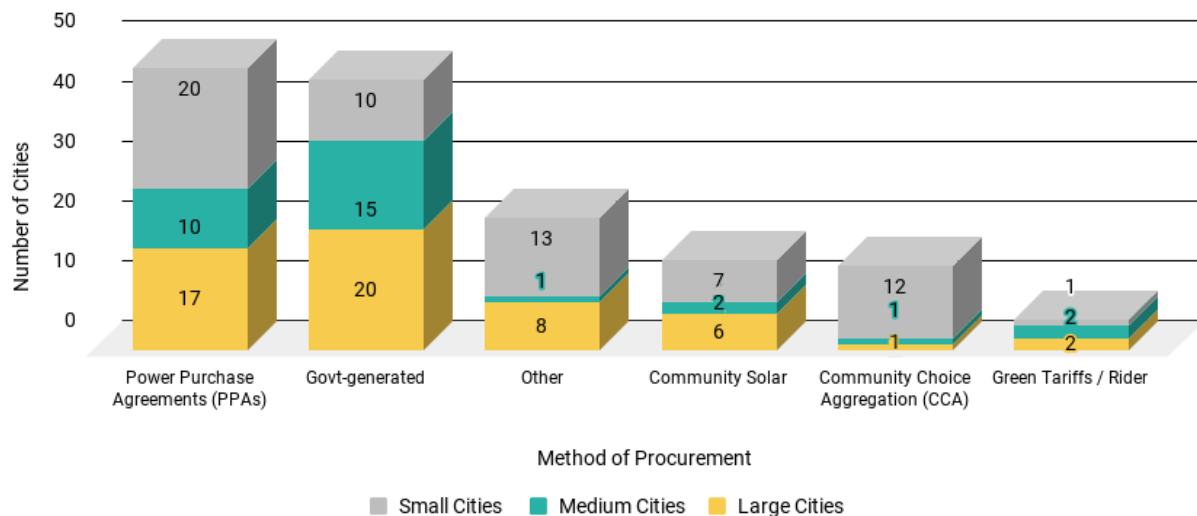
Figure 9. Percentage of Cities Procuring Renewable Electricity for City Operations



Overall, 65 percent of responding cities currently procure renewable electricity for municipal operations. Twenty-seven cities (42 percent of cities that procure renewable electricity) cover 30 percent or more of city government needs through renewable sources (see figure in Appendix 3). In the 2017 survey, less than 20 percent of cities crossed this threshold. In 2018, eight cities with a population between 92,000 and nearly 1 million cover all government electricity needs with renewable sources.

Cities most commonly procure renewable electricity through Power Purchase Agreements (PPAs) and government-generated electricity (Figure 10). The use of community solar programs is fairly evenly split between large and small cities, while community choice aggregation (CCA) is almost entirely a method used by large cities. Similar to PPAs and government-generated electricity, green tariffs are being used by cities of all sizes. Aside from direct procurements of renewable electricity, 17 percent (20 of 113) of responding cities purchase RECs.

Figure 10. Methods of Renewable Electricity Procurement Used by City Governments

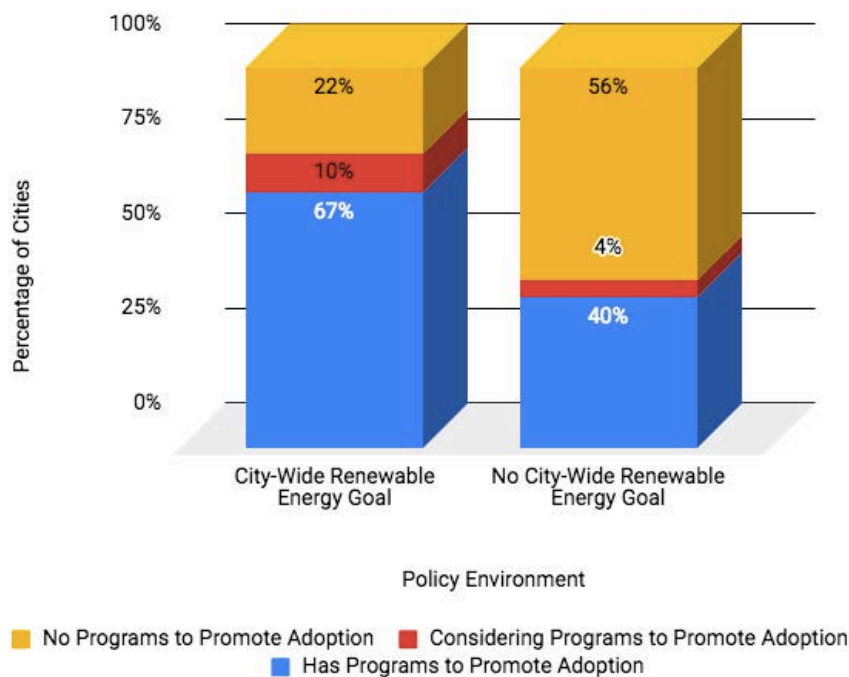


ELECTRICITY FOR THE COMMUNITY

Thirty-seven percent of cities have a citywide renewable energy goal, and an additional 19 percent are considering setting one.

Fifty-one percent of cities have policies or programs that help citizens and businesses choose renewable electricity options. 13.5 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 11).** Property-assessed Clean Energy (PACE) financing and CCA programs were commonly reported as the type of local program/incentive to promote renewable electricity adoption by the community.

Figure 11. Presence of Community-Facing Policies and Programs for Renewable Energy

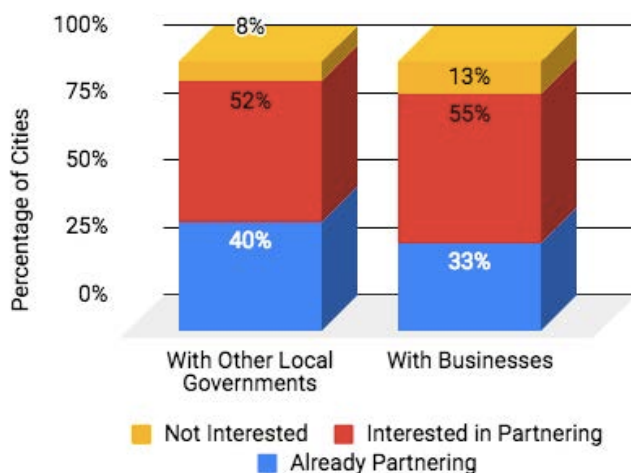


Plano, Texas, is developing a community-wide energy challenge. Among several focuses, the challenge will encourage residents and businesses to switch to renewable electricity. The city is a U.S. Environmental Protection Agency (EPA) Green Power Partner and is working to become an EPA Green Power Community.

PARTNERSHIPS

More than half of cities are interested in partnering with other local governments and businesses in pursuit of renewable energy solutions (Figure 12). Additional cities already have partnerships to bring the combined amount to almost 90 percent of cities that are either interested or already engaging in partnerships with businesses or other governments.

Figure 12. Partnerships to Advance Renewable Energy



ENERGY EFFICIENCY

It is estimated that commercial and residential buildings are responsible for approximately 40 percent of the U.S. carbon dioxide emissions. Unlike efforts to reduce vehicle emissions which usually require substantial government investment in transit as well as encouraging people to use alternative transportation options, most cities have some control over local building codes for both new and existing buildings. For these reasons, many cities are looking to increase energy efficiency for both public and private buildings.

POLICIES FOR MUNICIPAL BUILDINGS

The majority of city governments have established policies to promote energy efficiency within new and existing municipal buildings and operations (70 percent and 72 percent respectively). These policies are slightly more common in cities with populations larger than 250,000. 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.

Evanston, Illinois, provides residents and small businesses 100 percent renewable electricity through Community Choice Electricity Aggregation since 2012. The city is developing a strategy to encourage large employers to increase or begin their purchase of renewable energy. The city is also working to place solar installations on public buildings to demonstrate the feasibility of onsite solar generation on multiple facilities.

ENERGY AUDITS

Seventy-one percent of cities conduct routine energy audits for city buildings—a slight increase from 2017 responses—and another 17 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.

In **Atlanta**, all existing city-financed properties larger than 25,000 square feet are required to gain Leadership in Energy and Environmental Design (LEED) for Existing Buildings certification every 10 years.

POLICIES FOR COMMERCIAL AND RESIDENTIAL BUILDINGS

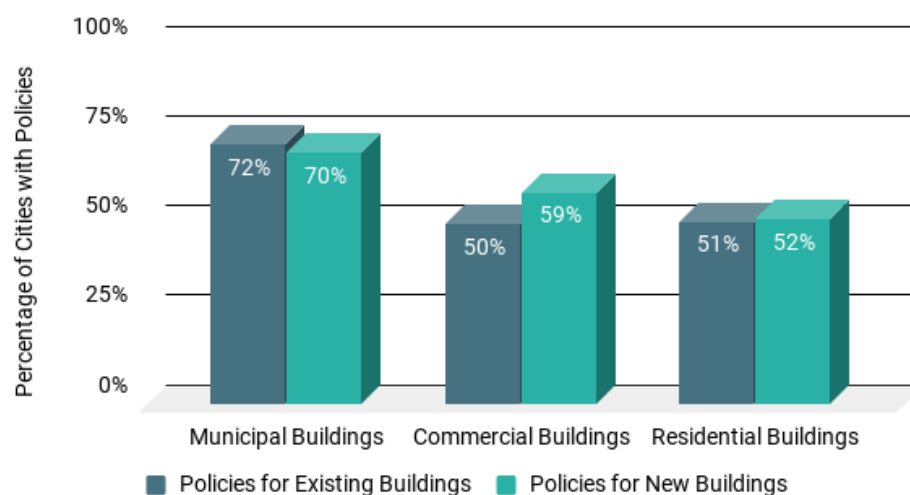
More than half of responding cities have established energy efficiency policies or incentives for new and existing commercial buildings. Cited policies include advanced building and energy codes; requirements for specific upgrades, energy performance levels, or third-party certifications; participation 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 least-reported in medium sized cities (45 percent), in comparison to large and small cities (67 percent and 63 percent, respectively). However, roughly one quarter of medium-sized cities reported that they are considering policies or incentives for new and existing commercial buildings. This interest level is higher than reported by large and small cities and suggests that medium-sized cities may be an area of growth in the coming years.

Half of cities have established energy efficiency policies or incentives for new and existing residential buildings (Figure 13).

For existing residential buildings, this rate is consistent across city size categories. There is greater variability for the presence of policies or incentives for new residential buildings, with medium-sized cities lagging behind large and small cities.

Figure 13. Presence of Energy Efficiency Policies for Buildings



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.

Aspen provides incentives for new and remodeled buildings to build above code. There is also an action to limit the total greenhouse gas emissions from future development through the use of controlled growth and coordinated land use in and around the urban growth boundary.

ENERGY BENCHMARKING

Energy benchmarking is an emerging local policy strategy that involves energy use data reporting by buildings—typically commercial buildings of a certain size—and making it publicly available. The approach facilitates energy performance tracking of buildings, supports decision-making for efficiency investments and creates a local market for high-performing buildings.

Boulder adopted “SmartRegs” ordinances in 2010, which provide new baseline energy efficiency requirements for existing rental housing in the city. All licensed rental housing is required to meet a basic energy efficiency standard by the end of 2018.

Currently, 23 percent of responding cities support or require energy benchmarking of commercial buildings. More specifically, voluntary benchmarking is supported by 18 cities and mandatory benchmarking requirements are in place in 23 cities. Large cities are leading in adoption of these policies; however, nearly one third of cities in each size category are considering benchmarking programs in the future.

Starting in 2012, the **District of Columbia’s** Clean and Affordable Energy Act of 2008 required all buildings residential and commercial buildings over 50,000 square feet to report energy and water use annually using the EPA Energy Star Portfolio Manager tool. The law is now fully phased in and the data disclosure now captures more than 1,500 buildings. Between 2013-2016, the weather-normalized site energy use intensity (EUI) of private buildings that reported their energy use fell 4.5 percent.

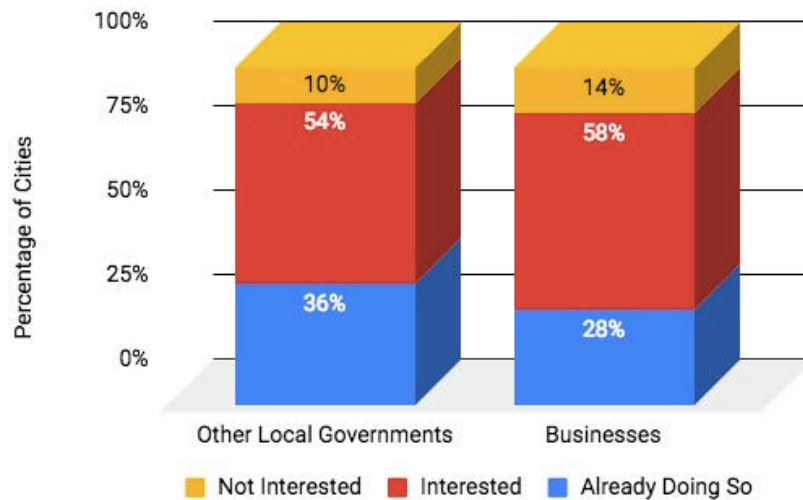
PARTNERSHIPS

Fifty-eight percent of cities are interested in partnerships with businesses to advance energy efficiency solutions, a practice already underway in 28 percent of responding cities. Notably, every large city that responded to the survey question indicated interest in or current partnerships with the business community.

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.

Half of cities are interested in energy efficiency partnerships with other local governments, an approach already underway in 36 percent of responding cities (Figure 14). New partnerships are likely to occur in the same way that cities already in partnerships approach them; through regional alliances and councils, peer networks and nationwide initiatives.

Figure 14. Partnerships to Advance Energy Efficiency Solutions



STRATEGIES & COLLABORATION TO SUPPORT ACTION

TRACKING GREENHOUSE GAS EMISSIONS

Cities were asked about practices to inventory GHG emissions. **Currently, 75 percent of responding cities track their emissions.** Among cities that do measure their GHG emissions, the ICLEI ClearPath tool is commonly used, with a 43 percent usage rate (47 out of 110 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 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.

Conversely, 25 percent of cities do not track greenhouse gas emissions; and this appears more common among medium-sized cities.

PARTNERSHIPS WITH THE PRIVATE SECTOR

As noted throughout this report, cities display overwhelming interest in partnering with businesses to advance energy efficiency, renewables, and low-carbon transportation. To facilitate the development of new partnerships, responding cities described the specific ways the private sector could support the city's climate goals. The suggestions below create a picture of how city governments view the role of business:

- Partner with the city to
 - develop and execute the city's sustainability plan
 - identify climate vulnerabilities, develop and identify adaptation strategies, outcomes, metrics, and measurement tools.
- Invest in public transportation, resilient infrastructure, energy efficiency, and renewable energy

- Improve company operations by
 - setting company goals
 - eliminating fossil fuel use in operations
 - participating in Commercial Property Assessed Clean Energy (C-PACE) programs
 - promoting compliance with design and construction above current standards
 - adopting energy efficiency and renewable energy, and promoting the use of EVs
 - promoting climate action among employees; incentivizing public transport and proximal housing for employees.
- Provide
 - in-kind services and expertise
 - funding for private projects (e.g. solar or efficiency loan products)
 - case studies of successful business-facing local/state policies in other communities.
- Support adoption and implementation of new state and local climate policy
- Lead by example through
 - incubating, piloting, and scaling new technologies
 - creating a culture where green business practices are expected (e.g. green business awards, educating customers about company's actions)
 - convening to encourage and promote a low-carbon, conscious economy
 - communicating the role of businesses and residents addressing carbon pollution.
- Improve the community by
 - planting trees on private property to increase the urban tree canopy, reduce urban heat island impacts, mitigate stormwater runoff, and reduce energy use, especially in low-income neighborhoods
 - building “in-fill” development in the city
 - developing and enhancing walkable, family-friendly neighborhoods. This will help reduce energy consumption and carbon emissions from suburban commuting to city-based jobs, better utilize existing infrastructure, and take development pressure off green space outside the city.

PARTNERSHIPS WITH UTILITIES

Kansas City, Missouri, is working with Kansas City Power & Light and other businesses to expand the EV charging infrastructure and increase EV deployment in the city and the metro area. The city is also working with the KC Area Transportation Authority and local businesses to increase transit opportunities to connect households without cars to locations that provide living wage jobs.

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, both scoring 3 out of 5. Across all categories, large cities reported slightly better utility partnerships.

These findings are similar to 2017 responses, with a slight improvement.

DISCUSSION

CLIMATE IMPACTS

Directly connecting human-caused climate change and extreme weather has long been challenging, but attribution studies are improving and have already made some clear connections between certain extreme weather events and climate change. The changes cities are reporting are largely in line with the expectations of climate change projections in the 2017 Climate Science Special Report (part of the 4th National Climate Assessment). As cities experience changes in the frequency and intensity of new climate impacts, adjustments to local resilience strategies will be necessary to ensure city services match community needs. Moreover, cities that continue to experience multiple changes will likely find it necessary to prioritize adaptation strategies; broader educational efforts within city governments will be needed to ensure adequate preparation.

While some climate impacts, such as tidal flooding, cause repeated or gradual damages, 69 “billion-dollar” weather disasters impacted U.S. communities and caused more than \$550 billion in damage total from 2012-2017. These weather disasters included floods, severe weather, droughts, wildfires, heat waves, and hurricanes. While surveyed cities were not asked explicitly about these billion-dollar, weather-related disasters, they are reporting changing conditions, and the financial ramifications of the 69 weather disasters alone underscore the vulnerability of U.S. communities.

NEW ACTION

Cities across the United States are expanding and undertaking new climate initiatives and policies. Many of these activities produce co-benefits that will make cities more livable, such as traffic signal synchronization to reduce idling, efforts to extend low-carbon solutions to low-income communities, community resilience assessments, and tree canopy improvement programs.

TRANSPORTATION

In setting a baseline for municipal fleets in 2018, it is clear that conventional gasoline and diesel vehicles dominate, representing opportunities for cities aiming to lead by example. The results also show that cities are not afraid to test new options. Fleets employ a variety of vehicles; large cities in particular appear to be leading in the adoption of hybrid and all-electric passenger vehicles, as well as all-electric buses – a very recent addition to the market.

There is growing dialogue around local government adoption of electric vehicles, but the question of whether this interest is reflected in fleet profiles remains to be answered. An initial lack of available models may have constrained market penetration, but the recent expansion of available EV models may facilitate more municipal procurement. According to the U.S. Department of Energy’s Alternative Fuels Data Center, the number of available models rose from 0 in 2007 to 27 in 2015 and then to 46 in 2017. Looking ahead, city officials may find that there are more EV models to consider than in prior procurement opportunities. With green vehicle procurement policies in place in 60 percent of cities, and these cities accounting for upwards of 80 percent of new vehicle purchases, a transition may be underway. By tracking municipal fleet profiles, the Alliance intends to demonstrate whether city fleets are transitioning over time.

The impacts of transportation reach far beyond government fleets. The 2018 survey sets an additional baseline of the alternative transportation modes cities provide to citizens. The results show that public bus services and bike lanes are widespread across American cities. In some ways, the new modes that cities are considering most often, such as vehicle sharing programs, are logical. For example, bike-share and scooter-share programs are established and managed by private sector players and bring relatively minor governmental burden (although they are encountering legal hurdles). On the other hand, bus rapid transit and local rail transit involve large infrastructure and planning efforts and require heavy government investment. There is an argument to be made that each of these alternative modes will play an important role providing low-carbon last-mile and longer-range commuting options.

Finally, about half of cities are engaging in efforts to establish better EV charging networks and some – mostly California cities – are incentivizing citizens to purchase the vehicles. 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.

RENEWABLE ENERGY

In June 2017 and reaffirmed in 2018, The U.S. Conference of Mayors adopted a resolution in support of cities establishing a community-wide target of powering their communities with 100 percent clean, renewable energy by 2035. While the portion of cities procuring renewable electricity has not changed significantly relative to the results published in the 2017 Alliance report, it does appear that the overall amount of renewable electricity governments are purchasing is 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 adopting a 100 percent renewable energy policy is to become common practice. It appears that setting renewable energy targets would aid in these efforts. The results shown in Figures 9 and 11 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

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.

However, given the scale of the climate challenge and the potential energy savings in the buildings across communities, many cities are promoting and extending efficiency solutions for a broader public benefit. Policies aimed at new construction appear more often than those for existing buildings, but only slightly. One emerging community-facing energy efficiency policy is energy benchmarking and disclosure programs. Throughout the country, these policies are still in early stages of development and implementation, and it is perhaps not surprising that the resource-intensive strategy is more common in large cities. The lessons learned by these early-adopters will be valuable as cities of all sizes move from consideration stages to adoption and implementation.

STRATEGIES AND COLLABORATION TO SUPPORT ACTION

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.

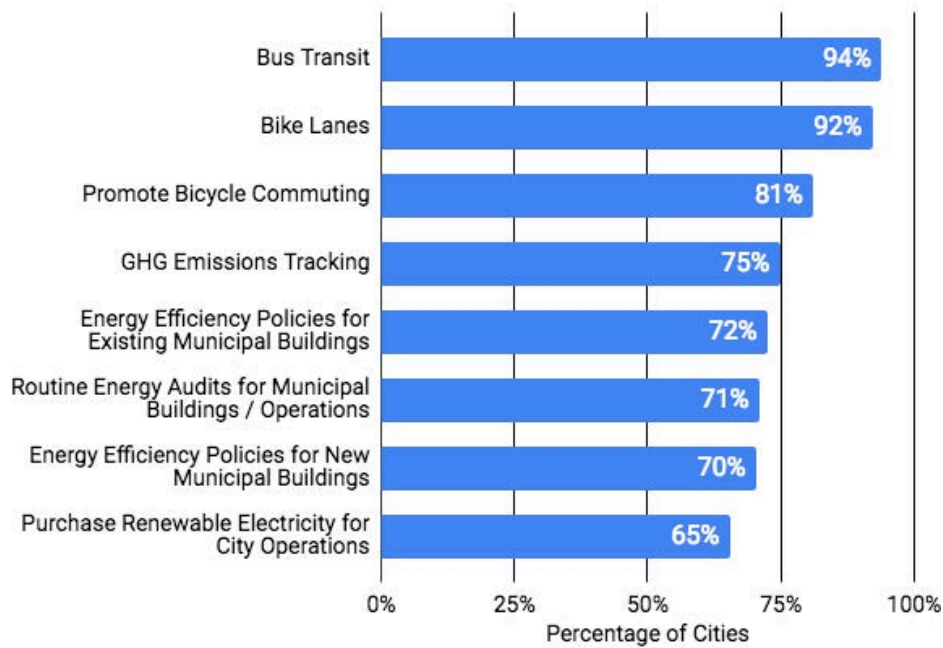
Across the board, cities identified an interest in partnering with the private sector to advance solutions in low-carbon transportation, renewable energy, and energy efficiency. Through the qualitative responses provided by cities, strong collaborative relationships with utilities in particular appear 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

Several policies and activities are found in nearly every participating city (Figure 15). These include bus transit, bike lanes, and efforts to promote bicycle commuting. Efforts to increase the energy efficiency and reduce the environmental impacts of local government operations are nearly as common.

Figure 15. Most Common Policies and Activities

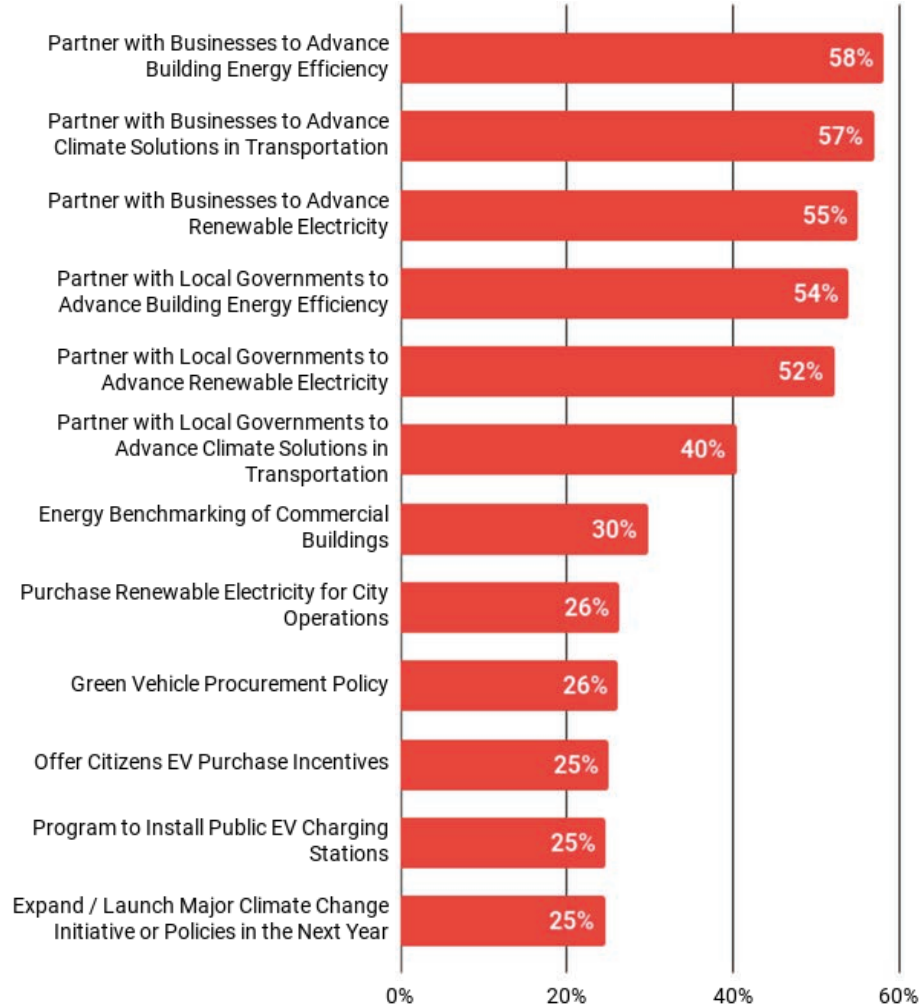
Percentage of Cities With Policies and Activities Underway



When reviewing the climate actions cities are considering most commonly, the development of new partnerships in all sector areas rises to the top (Figure 16). Targeted emission reduction actions, such as adopting green vehicle procurement policies, offering EV incentives to citizens, purchasing renewable electricity for the government, and establishing energy benchmarking programs are also relatively common.

Figure 16. Areas of Greatest Interest for New Participation

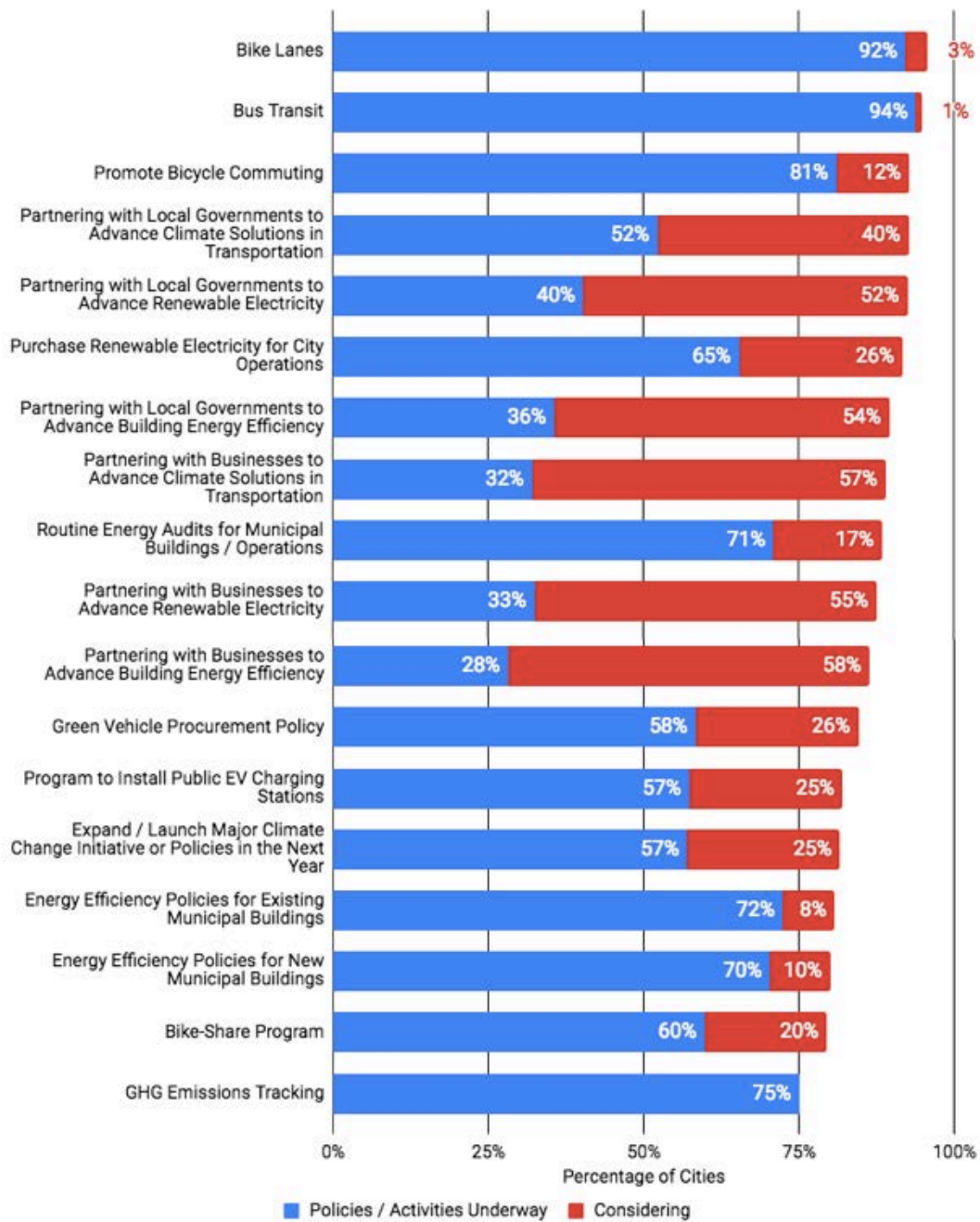
Percentage of Cities Considering or Interested



If acting cities continue their pursuits and those on the fence decide to move forward with policies and activities they are considering, we can forecast a future picture of American cities (Figure 17). Regardless of size, the future American city strives to provide mobility options including bus transit, EV charging, and bike-friendly streets with bike-share programs. Public-private partnerships and alliances with other local governments are in place to advance renewable energy, energy efficiency and low-carbon transportation solutions. At the center of these cities are energy efficient governments that are at least in part powered by renewable energy. Importantly, these governments will strive to face this future even while facing a number of changing climate impacts.

Figure 17. Potential Future of Climate Solutions in Cities

Most Common Policies and Activities Underway or Under Consideration





CONCLUSION

This report demonstrates that mayors and the cities they represent continue to step forward to reduce their greenhouse gas emissions through significant efforts at the local level. By adopting alternative fuel vehicles, increasing the energy efficiency of new and existing buildings, expanding the use of renewable electricity, and piloting new modes of transportation and incentives for citizens, cities of all sizes are actively working to advance climate solutions.

The results show that cities of all sizes can be leaders in the transition to a low-carbon economy. For example, while cities with populations greater than 250,000 are currently leading the way in green fleets, those cities under 250,000 are leading in transitioning to renewable electricity for local government.

Although this report does not fully document the extent and efficacy of the policies and programs in each city, it does show extensive mayoral leadership in adopting forward-thinking policies and developing programs to protect citizens and create livable communities. An important part of this leadership comes through the existing partnerships cities have established with their utilities, the private sector, fellow local governments and nonprofits.

The ability of cities and businesses to work together on these fronts will be critical to ensuring challenges are met. The specific opportunities for private sector engagement are substantial as listed in the “Partnerships with the Private Sector” section and can serve as a starting place for business leaders looking for direction. The challenge is two-fold – empowering cities to adopt new climate policies and actions, and then enabling them to deliver on their full potential.

This demonstrated leadership sends a powerful message to both domestic and global players and will help assure that climate progress continues to be made.



APPENDIX 1: METHODOLOGY

To continue the ongoing efforts from 2017, an invitation to complete the online questionnaire was sent to cities across the United States, including all USCM member cities, approximately 1,400 cities in July 2018. By August 6th, 158 cities from 39 states (in addition to the District of Columbia, see Appendix 2) had provided answers to all or part of the questionnaire. All 102 cities from the 2017 survey responded in addition to 56 others. Responding cities represent a broad geography and range in size from 3,906 (Lambertville, NJ) to 8.5 million (New York City), and together represent more than 50 million Americans. This questionnaire will be sent out again in 2019 to continue monitoring city efforts towards increasing their energy efficiency and sustainability efforts.

To calculate participation percentages, total responses for each question were used as the denominator, rather than the entire 158 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, 119 of the 158 participating cities answered the question “Is the city interested in partnering with businesses to advance climate solutions in transportation?”, 35 of them affirmatively. Therefore, 35 was divided by 119 to determine that 32 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.

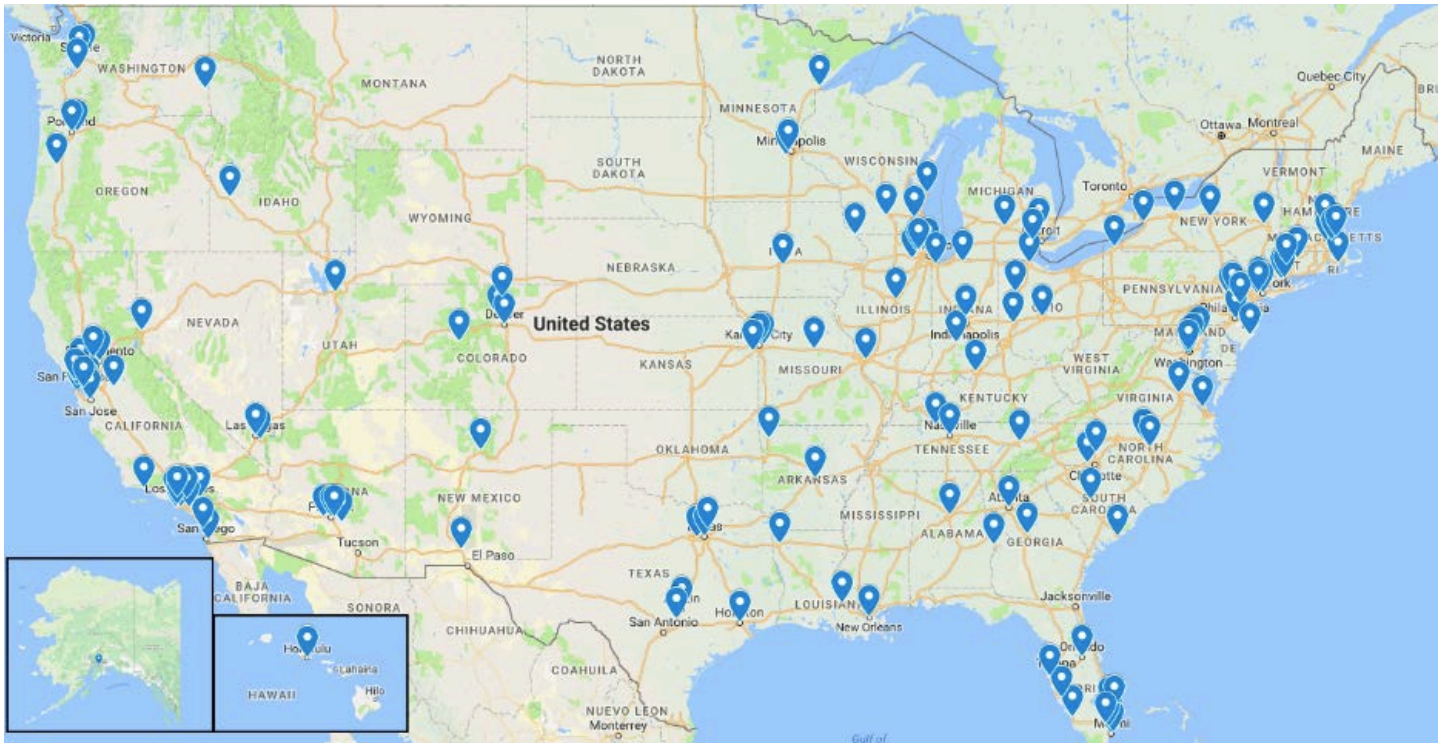
Cities were also grouped based on population size. This information attempts to identify differences in policy implementation due to differing available resources. The limits used to group responding cities were as follows: Small: <100,000 citizens; Medium: 100,000-250,000 citizens; and Large: >250,000 citizens. Using these delineations, 75 cities qualify as “small” and represent 4.5 million citizens, while the 40 “medium” cities represent 6.3 million citizens, and the 43 “large” cities cover 39.5 million residents.



APPENDIX 2: PARTICIPATING CITIES

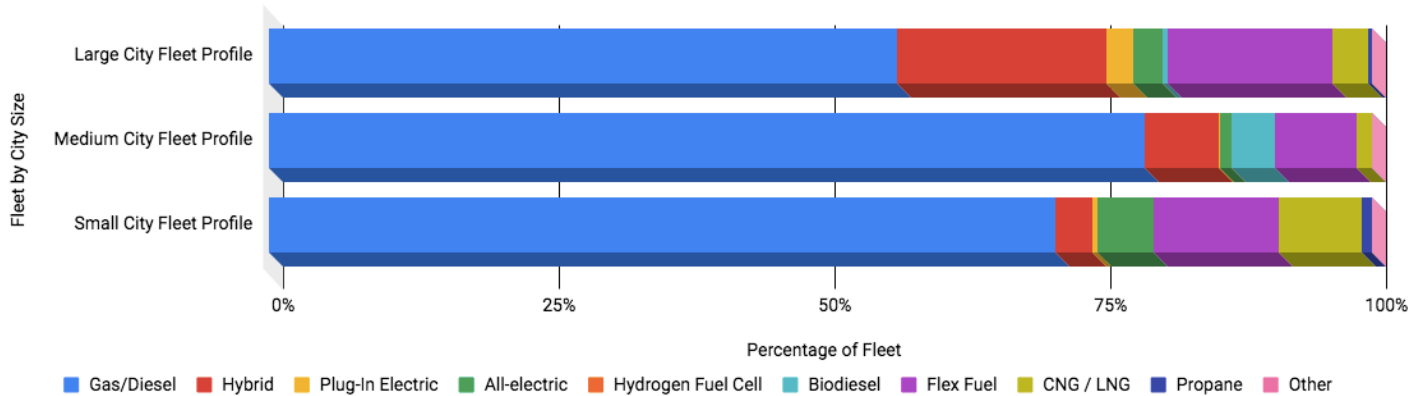
Alameda, CA	Dayton, OH	Little Rock, AR	Revere, MA
Alexandria, VA	Denver, CO	Long Beach, CA	Richmond, VA
Alhambra, CA	Des Moines, IA	Los Angeles, CA	Riverbank, CA
Anchorage, AK	Dublin, CA	Louisville, KY	Rochester, NY
Arlington, TX	Dubuque, IA	Macon, GA	Rochester Hills, MI
Aspen, CO	Duluth, MN	Madison, WI	Saint Louis, MO
Atlanta, GA	Durham, NC	Manhattan Beach, CA	Saint Louis Park, MN
Aurora, IL	East Hartford, CT	Margate, FL	Salt Lake City, UT
Austin, TX	Easton, PA	Mesa, AZ	San Bruno, CA
Avondale, AZ	Eden Prairie, MN	Miami, FL	San Francisco, CA
Baltimore, MD	Elizabeth, NJ	Miami Beach, FL	San José, CA
Baton Rouge, LA	Encinitas, CA	Mooresville, NC	San Leandro, CA
Bethlehem, PA	Erie, PA	Napa, CA	San Rafael, CA
Birmingham, AL	Evanston, IL	Nashua, NH	Santa Ana, CA
Bloomington, IN	Everett, MA	Nashville, TN	Santa Barbara, CA
Boise, ID	Fairfield, CT	New Bedford, MA	Santa Fe, NM
Bonita Springs, FL	Fayetteville, AR	New Orleans, LA	Santa Monica, CA
Boston, MA	Fontana, CA	New York, NY	Schaumburg, IL
Boulder, CO	Fort Collins, CO	Newark, CA	Schenectady, NY
Bridgeport, CT	Framingham, MA	Newark, NJ	Seattle, WA
Buffalo, NY	Fremont, CA	Newport News, VA	Sheboygan, WI
Burnsville, MN	Gary, IN	Newton, MA	Shreveport, LA
Camden, NJ	Gastonia, NC	Normal, IL	South Bend, IN
Carmel, IN	Gresham, OR	North Port, FL	Stratford, CT
Carson, CA	Hallandale Beach, FL	Oakland, CA	Syracuse, NY
Charleston, SC	Hanover Park, IL	Olathe, KS	Tacoma, WA
Chicago, IL	Henderson, NV	Orlando, FL	Tempe, AZ
Chula Vista, CA	Hermosa Beach, CA	Pembroke Pines, FL	Toledo, OH
City of Weston, FL	Honolulu, HI	Phoenix, AZ	Torrance, CA
Clarksville, TN	Houston, TX	Pinellas Park, FL	Washington, DC
Clifton, NJ	Independence, MO	Plano, TX	Waterbury, CT
College Park, MD	Kansas City, MO	Pleasantville, NJ	Waukesha, WI
Columbia, MO	Knoxville, TN	Portland, OR	Wellington, FL
Columbia, SC	Lambertville, NJ	Pullman, WA	West Covina, CA
Columbus, GA	Lansing, MI	Queen Creek, AZ	West Hollywood, CA
Columbus, OH	Las Cruces, NM	Raleigh, NC	West Palm Beach, FL
Corvallis, OR	Las Vegas, NV	Rancho Palos Verdes, CA	West Sacramento, CA
Culver City, CA	Laurel, MD	Redmond, WA	Westland, MI
Dallas, TX	Lima, OH	Reno, NV	Woodland, CA

MAP OF PARTICIPATING CITIES

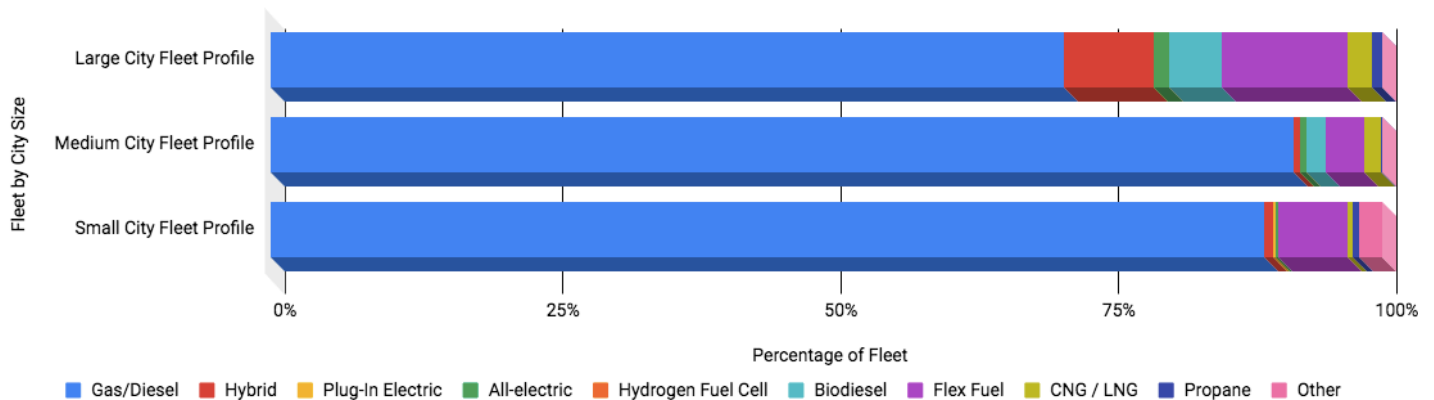


APPENDIX 3: ADDITIONAL FIGURES

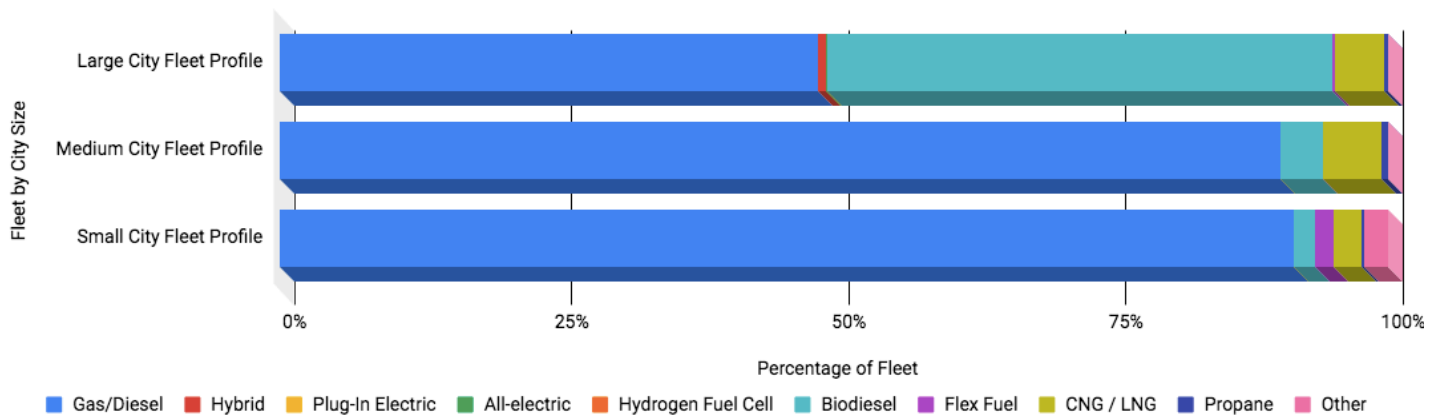
Passenger Car Fleet Makeup by City Size



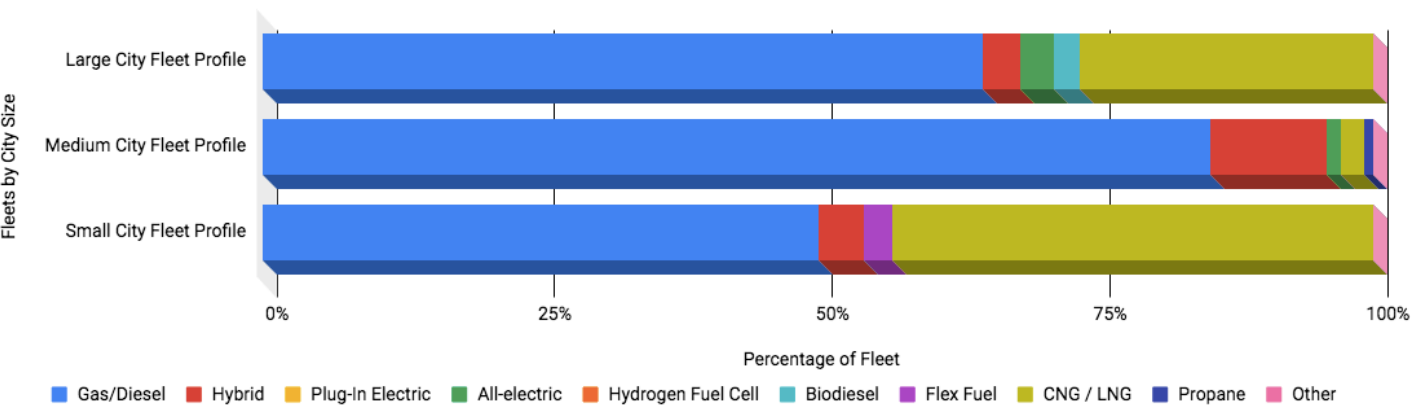
Light-Duty Fleet Makeup by City Size



Medium- and Heavy-Duty Fleet Makeup by City Size

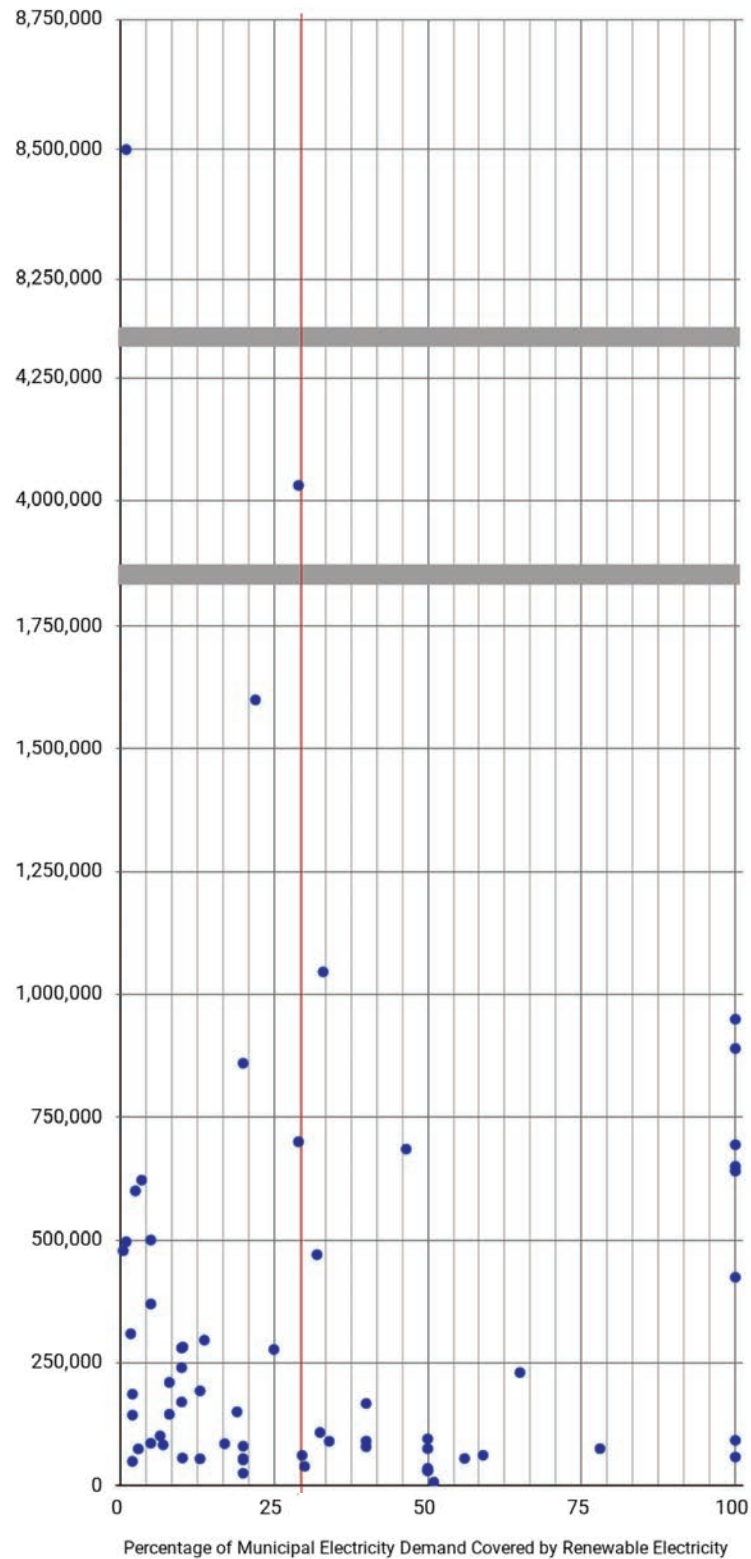


Bus Fleet Makeup by City Size



Cities Powering Municipal Operations with Renewable Electricity

Charted by City Size





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