An Electric Vehicle Toolkit for Local Governments

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Layout: Alec Meltzer

Cover photo: Electric vehicle charging station at the Summit County Library in Park City, Utah. Credit: Margaret Smith / Akimeka via NREL 61256.

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Introduction

Local officials in cities and counties across the country are leading the way toward a cleaner transportation future.

On November 14, 2018, the AP Environmental Science class of Akins High School in Austin, Texas, gathered in their school's parking lot to witness the beginning of a more sustainable future for their school: the school's first electric vehicle charger.[1] One student noted to a reporter how seeing the unveiling of the technology made her want an electric vehicle (EV) herself one day.[2] The parking lot is now a "living laboratory" in which students collect data from the charger and learn about the science behind it. As a result, these brand-new drivers and the generations to come were given the chance to be inspired by the possibilities of EVs and educated about the clean transportation of their future.

Introducing brand-new drivers to the future of electric vehicles is just one of many steps Austin has taken

Electric Porsche in Palm Springs, California. Credit: Bob Osias via Unsplash

to promote the adoption of EVs. Growing concerns about climate change and air quality, along with a desire for long-term cost savings, led to policies in Austin that made it easier to buy and use EVs. Austin Energy, the city's electric utility, made EV charging in Austin easy with extended rebates for the installation of EV charging stations in homes, as well as its Plug-in Everywhere network, which supplies over 1,000 affordable charging ports, many powered with renewable energy.[3]

The city government also took action to promote EVs. The City Council passed a resolution to reach net-zero greenhouse gas emissions in Austin by 2050 and included recommendations for expanding EVs in the city. The city further proved its commitment to EV adoption by purchasing 325 electric bikes for public use and 38 electric buses for public transit.[4] Now, Austin serves as an example of how any city can promote the use of electric vehicles.

Climate change is already harming cities across the world, and fossil fuel-powered transportation is a significant contributor to the carbon emissions that continue to accelerate it. Cities and towns can help make a difference by encouraging the widespread adoption of EVs. And they have many tools they can use to do so – from expediting permitting for EV chargers to leading by example by purchasing electric vehicles for municipal fleets.

This report includes tools and policies that leading cities have adopted to make it easier to buy and own an EV. By taking these steps, local governments around the country can make the switch to clean, electric vehicles an easier choice for everyone.

Electric vehicles keep our air clean

Pollution from gasoline-powered vehicles has lasting consequences for our health and climate. In the U.S., transportation is the largest source of the greenhouse gases that cause global warming.[5] Ozone smog and particle pollution from vehicles can cause cardiovascular, developmental and reproductive harm, asthma, and even premature death.[6] Some studies have linked traffic to an increased likelihood of heart attacks and found that living next to a busy road can lead to a higher risk of dementia.[7] These risks are especially high for children living in areas with high levels of air pollution because their lungs are still developing.

Luckily, electric vehicles (EVs) do not produce tailpipe emissions, and are on the rise across the country. There are currently over 50 models on the market, and over 2 million battery-powered and plug-in hybrid EVs have been sold in the U.S.[8] In addition, electric vehicles can be charged from a grid that is increasingly powered by renewable energy, making them even better for the environment. As the grid gets cleaner, so too does every EV currently on the road. To clean our air and make meaningful progress against global warming, transitioning from gasoline-powered to electric vehicles is a must.

A local toolkit to encourage EV adoption

Local governments have an important role to play in making clean transportation a reality. Every day, local governments make decisions about municipal purchasing, the use of public streets and parking garages, planning and zoning, and other issues that can either make it easier or more difficult for their residents to own an EV. By using a set of key tools to encourage EV adoption, local governments can help clean up the air in their communities and take meaningful action against global warming.

Municipal purchasing of EVs

Local governments have the ability to lead by example in demonstrating the effectiveness and viability of electric vehicles. By purchasing EVs for municipal fleets, they can help clear the air and significantly reduce their carbon footprint. Not only that, but cities can also save money by transitioning to a fully electric municipal fleet. A recent study found that in 23 of the top 25 metropolitan areas in the U.S it is 47% cheaper to fuel light-duty vehicles with electricity than gasoline.[9]

Electric municipal fleets

As a first step to helping their communities transition to electric vehicles, municipalities can set an example by converting their own fleets to be fully electric. Local governments can establish incremental municipal fleet targets to reach a 100% electric vehicle goal over time and significantly reduce their carbon emissions. Cities can ensure they reach their goal by developing an EV task force to inform city planning.

- Uxbridge, Mass., plans for an EV transition: In 2020, Uxbridge published a five-year plan for replacing all municipal cars, SUVs and light-duty trucks with hybrid and electric vehicles. This transition will allow the town to save on gas and maintenance fees, offsetting the upfront cost of EVs in the long run.
- Salt Lake City sets municipal EV goals: To help reach its goal of reducing greenhouse gas emissions by 80% by 2040, Salt Lake City has resolved to incrementally transition its municipal fleet to electric.
- Long Beach, Calif., works to expand its green fleet: The city recently introduced 70 EVs and the Long Beach fleet was ranked the third-best green fleet in the country in 2020.
- Des Moines, Iowa, looks to save money through an EV transition: Four EVs have been added to the municipal fleet and the city council has approved the purchase of 11 more. The city plans to evaluate future EV purchases as necessary, including the possibility of electric pickup trucks.
- Los Angeles creates a detailed plan to decrease emissions through an EV transition: One important piece of L.A.'s plan is electrifying its entire municipal fleet by 2028 and ensuring that 100% of new light-duty fleet purchases are EVs.

Charging stations for city fleets

In order to accommodate the transition to a fully electric municipal fleet, city employees need to have reliable ways to charge municipal vehicles. Cities can build charging stations specifically for their electric vehicles at their parking facilities and can prepare for future growth of their electric municipal fleet by developing a municipal fleet charging plan.

- Seattle provides charging for fleet vehicles: Seattle added 156 city-owned charging stations for the city's growing municipal fleet. This was part of the city's plan to have Seattle be carbon neutral by 2050.
- Sacramento green fleet charging stations: The city has 51 city-owned chargers solely for its city fleet and provides a map of all the chargers in the city.
- Ashland, Ore., partnered with non-profit on EV charging: The city worked with Forth Mobility, an Oregon non-profit supporting EVs, to install 10 EV charging stations for its city fleet.
- New York City looks to install and improve fleet charging: NYC installed 58 fast EV chargers for the city fleet that can charge seven times faster than regular Level 2 chargers. This will make it easier to phase out gas-powered cars and accomplish the goal of an all-electric fleet by 2040.

Expansion of EV charging infrastructure

Consumers will only feel comfortable adopting EVs if they are confident that they will be able to recharge them when needed. While most recharging takes place at home, EV owners will also need places to recharge their vehicles in public. Public charging availability is especially important to encourage EV adoption among residents of multi-unit apartments and condominiums. Municipalities can take concrete steps to make it easier and more affordable for residents to install EV charging stations at home and can encourage the construction of more EV charging infrastructure in public places.

City-owned public charging stations

A major barrier for residents to transition to electric vehicles is a lack of publicly available charging stations. Cities can encourage residents to purchase electric vehicles by providing public charging stations in municipally owned parking garages and public parking lots, as well as installing on-street stations in areas where residents don't have access to off-street parking.

An EV charging station. Credit: Roger Starnes Sr. via Unsplash

- Rochester, N.Y., accessed state funding for public EV chargers: The city installed 36 charging ports throughout the city to encourage EV adoption, funded with grants from the New York State Department of Environmental Conservation (NYSDEC) and the New York State Energy Research and Development Authority (NYSERDA).
- Evanston, Ill., offers free public charging: Evanston provides several public EV charging stations that are free to the public for use.
- Boston works towards citywide EV charging access: Boston has a goal of having publicly accessible EV charging stations in every neighborhood by 2023. The city is installing chargers in six municipal lots to meet the demand for charging.
- Fort Wayne, Ind., uses VW settlement funds to install EV chargers: The city of Fort Wayne plans to use grants from the Volkswagen "Dieselgate" settlement to install 27 charging stations at 10 locations.
- Nashville, Tenn., operates public charging ports: Nashville owns and runs 56 charging ports at 23 locations that are open to the public for free and provides a map with their locations.

Utility-owned charging stations

Communities will need as many public charging stations as possible to make charging an EV as easy as fueling a car. Local governments can work with electric utilities to encourage them to install, own and operate public charging stations.

- Kansas City, Mo., utility significantly increases charging options: Kansas City Power & Light Company developed a plan to install and run about 1,000 electric vehicle charging stations, which they achieved in 2018. For the first few years, charging was provided for free.
- San Diego runs "Power Your Drive" program with local utility: The city is working with San Diego Gas & Electric to install EV chargers and recently approved an additional round of charging installations through its "Power Your Drive" program.
- New Orleans evaluates EV demand: The city of New Orleans partnered with Entergy New Orleans to encourage the adoption of EVs. Entergy New Orleans is providing up to 50 chargers for public use, while the city surveys the population for electric vehicle demand.
- Mobile, Ala., partners with Alabama Power: The Mobile government with support from Alabama Power is bringing the first EV charging stations to downtown Mobile, with chargers in 11 locations.

Business-owned charging stations

According to the U.S. Department of Energy, a worker with access to workplace charging is six times more likely than the average worker to drive an electric vehicle.[10] Local governments can reach their community EV goals by encouraging or requiring businesses to install charging stations in their parking lots for employees and connecting them with available funding. Employers can decrease their carbon footprint and distinguish themselves among other businesses by providing charging stations for their employees.

- San Jose, Calif., provides rebates: Businesses can apply for significant rebates when they install EV chargers at their workplace for employees. Rebates are provided by San Jose Clean Energy and the California Energy Commission.
- Atlanta works with business partners: The city is looking to increase the number of employers with EV chargers by tenfold over the next five years. Through the "Workplace Charging Challenge," the city works with local businesses to evaluate EV charging demand and implement solutions.
- Dallas-Fort Worth workplace charging guide: This guide presents the benefits of workplace charging to both employees and employers, as well as information on how to fund charging stations.

City EV charging installation guidelines and streamlined permitting

Installation of electric vehicle charging for personal and commercial use can be complicated. Cities can provide guidelines that simplify the process on their websites and provide handouts and brochures at their offices to help guide residents and businesses in installing EV charging infrastructure. Building departments can streamline their review process for charging station permits by providing checklists with the steps for applying for a permit on their websites, and by providing online forms to make applying for a permit quick and easy. When implemented, streamlined permitting should ideally allow for 24-hour permit review for single-family residential charger installation applications (where a permit is required) and five-day permit review for commercial and multi-family charger installation applications, including for DC fast chargers. Cities can also provide pathways for installing curbside charging for residents who don't have access to off-street parking.

- Boston provides a clear manual: The city provides a detailed "How-To Guide" for the EV charger installation process, the permitting process, and how to select a location.
- Chicago makes permit approval easy: Chicago provides an Easy Permit Process so that permits can be approved in just one day, as well as a guide for installation.

An off-grid, solar powered, solar tracking EV charger in Golden, Colorado. Credit: U.S. Department of Energy via Flickr

- Charlotte, N.C., has fast permitting: The city has a unique automated permitting process that is very fast. Contractors can get permits for EV chargers in less than 20 minutes.
- Sonoma, Calif., makes getting a permit easy: The city has expedited permit approval in 1-3 business days. The city website provides clear steps for obtaining a permit.

Charging stations powered by renewable energy

Transitioning to electric vehicles reduces pollution even when they are charged from today's electric grid, but EVs are most effective at reducing emissions when charging stations are powered by 100% renewable energy. Charging station owners, including local governments, can invest in their own renewable energy solutions, such as solar panels, or partner with private companies to offset the grid emissions associated with EV charging.

- Austin, Texas, charging stations powered with wind energy: All public EV charging stations provided by Austin Energy are powered by 100% renewable wind energy.
- San Diego powers EV charging stations with off-grid solar: San Diego negotiated a public-private partnership to deploy 50 solar-powered EV charging stations. The stations will take minutes to install, be free for drivers to use, and come at no cost to the city.
- Charlotte, N.C., has solar-powered EV charging stations: The city of Charlotte deployed the county's first four off-grid, movable solar-powered EV charging stations. This is part of the city's plan to become a low-carbon city by 2050.
- Green Bay, Wisconsin is piloting solar EV charging: The city installed a solar-powered EV charging station at the short-term parking area of its international airport for easy drop-off and pick-up charging.

Electric buses and bikes

Public transportation plays an important role in cutting greenhouse gas emissions by replacing trips in private cars. Yet, exhaust from diesel and gas buses is damaging to public health and contributes to climate change. Expanding the adoption of electric buses can magnify the environmental and health benefits of public transportation.

Electric buses for public transportation

Replacing all of the country's diesel-powered transit buses with electric buses could eliminate over 2 million tons of greenhouse gas emissions annually and reduce fuel and maintenance costs.[11] Cities can work with local transit agencies to secure grants to purchase electric transit buses and to build electric bus charging infrastructure.

- Los Angeles pursues 100% clean, electric buses: As part of the city's plan to reduce emissions through its local Green New Deal, the mayor announced plans to replace 2,300 buses with electric and other zero-emission buses by 2030.
- Seneca, S.C., is the first to pursue electric buses: Seneca was the first city in the country to launch an all-electric bus fleet, which it did in 2014. The city is a pioneer in electric buses and continues to expand its fleet.
- Chicago runs a successful test with electric buses: After the success of their first two electric buses, Chicago bought six more electric buses for their public transportation system. The Chicago Transit Authority plans to put 17 more electric buses into their fleet in the near term because it found that it saved money on avoiding repairs and the cost of gas.
- Denver prioritizes expanding electric buses: Denver has one of the largest EV bus fleets in the country, with almost 40 electric buses in their public transportation system. The city partners with Xcel Energy to get electricity for the buses at a competitive rate.
- Anchorage, Alaska, tries electric buses: The Anchorage Public Transportation Department deployed its first electric bus as a test run, and the city plans to add more in the future. They found that electric buses created excitement among the community for public transportation and they plan to order six more electric buses.

Electric school buses

Electric school buses are particularly important to improve air quality and protect the health of school-aged children, up to half of whom ride school buses nationwide.[12] If the U.S. replaced all school buses with electric buses, 5.3 million tons of greenhouse gas emissions could be avoided annually.[13] Cities can work with school districts to electrify school buses and install bus charging stations, including by applying for state and regional funding.

- New York City makes plans for entirely electric school buses: In 2021, the mayor committed to a 100% electric school bus fleet by 2035, starting by adding 75 electric buses to the fleet by 2023.
- Santa Cruz, Calif., finds electric buses help their budget: Santa Cruz City Schools got grants from the Monterey Bay Air Resource District and the California Air Resource Board to buy its first electric school bus. The project helped the school budget by relying on outside funding sources, and the electric bus is quieter, providing a more comfortable ride for students. The city plans to buy another electric bus.
- Montgomery County (Md.) Schools commits to electric buses: The school district is rolling out hundreds of electric school buses, replacing 326 diesel school buses over four years. By 2035, the county aims to swap its entire fleet of about 1,422 buses with zero-emission vehicles. This project was partially funded through a grant from Maryland Energy Administration.
- Ann Arbor, Mich., looks to cut carbon emissions with electric buses: The city worked with the state government and DTE Energy to fund the purchase of six electric school buses. DTE will study the use of these buses to further understand how to implement electric buses in other school districts.
- West Fargo Public Schools, N.D., purchased an electric school bus: The school district purchased the first electric school bus in the state of North Dakota. The district received funding from energy cooperatives and state government agencies and believes that electric buses will be more cost effective in the long run than traditional buses.

An electric passenger bus in Washington, D.C. Photo: Mario Sessions via Unsplash

Electric bikes

Electric bikes are an emission-free transportation option for many commuters in towns and cities across America. They make it easy for anyone to bike long distances, including older people and those with disabilities. However, good biking infrastructure such as bike lanes is necessary to promote e-bike usage.

- Park City, Utah, launched an electric bike share program: In 2017, the city partnered with Summit County to create Summit Bike Share Program, which provides e-bikes available for rent.
- Houston's bike share program adds e-bikes: After a successful pilot program, the city plans to add an additional 200 e-bikes available for rental, with a mobile app that allows users to find available bikes nearby.
- Protected bike lanes make biking an easier choice for residents: People for Bikes compiled a list of resources that explain the benefits of adding protected bike lanes, which can have both economic and safety benefits for municipalities.

EV-friendly building codes and zoning requirements

EV-ready building codes

To encourage the installation of charging stations at homes and businesses, local governments can implement building codes that require new residential and commercial construction projects to include a set number of EV charging stations or the necessary electrical infrastructure to implement charging stations in the future.

- Analysis of EV-ready building codes: Local governments can include electric vehicle charging in their residential and commercial building codes by following guidelines and sample codes provided by the Southwest Energy Efficiency Project.
- Boulder, Colo., encourages EVs in the building code: In Boulder, EV chargers or supporting infrastructure are required for every new building. Every new garage for a house needs at least one EV charging outlet or the infrastructure required for future installation.
- East Palo Alto, Calif., requires EV chargers: The municipal code in East Palo Alto requires new houses built with private garages to have wiring for an EV charger. For multi-family buildings with 20 units or fewer, each unit must have access to charger-ready wiring, while buildings with more than 20 units must have capacity for chargers for 10% of the units with parking spaces.
- Atlanta makes parking more EV-ready: Atlanta requires that 20% of the spaces in all new parking structures have the wiring available to install EV chargers and that all new homes have the infrastructure needed to install EV chargers.
- Orlando, Fla., looks to meet EV demand: In 2021, the city council considered an ordinance that would require 2% of parking spots at multi-family housing and hotels to have EV chargers and 20% of those parking spaces to be "EV capable." Commercial buildings would also need 2% of their parking spots to have EV chargers.

- Boise, Idaho, requires all new homes to be EV ready: All newly constructed single-family homes must have a high enough voltage for EV charger installation. This is to help the city work towards its goal of 100% clean energy.

- Madison, Wis., plans for EVs: The city passed an ordinance in 2021 requiring 10% of newly constructed parking for multi-family buildings to be EV ready, and 2% of residential parking and 1% of commercial parking to have EV charging installed and ready for use. This ordinance also comes with a schedule to increase the amount of EV-capable parking every five years.

EV-friendly zoning requirements

Local governments can address barriers to widespread EV deployment by creating parking requirements and parking area designs that benefit EV drivers in zoning ordinances. Cities can also require landlords or parking garage managers to allow individuals to install charging stations or to add or upgrade the wiring to support charging stations at parking spaces they lease.

- Reducing transportation emissions through better zoning: Local governments can shape commercial parking requirements and parking area designs through zoning ordinances and can incentivize EV purchasing by requiring charging station infrastructure and EV parking spaces in new developments. Cities that have been successful in implementing EV-friendly zoning requirements are summarized in this guide.

- Boston amends zoning to encourage EVs: Boston zoning laws require 5% of parking spaces in new construction to have EV charging stations and another 10% must have the infrastructure to support them. New policies for new off-street parking areas require 25% of spaces be equipped with EV chargers and the remainder to be EV-ready.

- Alexandria, Va., provides recommendations for how to encourage EVs through zoning: The City of Alexandria's Electric Vehicle Charging Infrastructure Readiness Strategy included recommendations for the city including updating zoning. The city developed a variety of policies that aim to remove barriers to installing charging infrastructure.

Incentives to purchase EVs

Financial incentives can provide an important nudge to encourage consumers to consider going electric with their next vehicle. Whether in the form of direct rebates and incentives to defray the upfront cost of an EV, or smaller incentives like discounted or preferred parking, there are a variety of creative tools local governments can use to encourage EV purchases.

EV purchase subsidies and funding

The upfront cost of electric vehicles can be expensive and create a barrier for many residents who would otherwise be interested in reducing emissions by switching to EVs. Local governments can make this choice easier by helping residents tap into already available regional, state and national funding programs for EV purchasing by educating the public about opportunities and connecting residents via their websites and offices.

- State and federal laws and incentives that promote EVs: The Alternative Fuels Data Center provides information on laws and incentives for electricity by state, as well as federal programs.

- Riverside, Calif., looks to encourage EV ownership: The city offers a $500 rebate for residents that buy new EVs from a Riverside automobile dealership.

- Orlando, Fla., eases people into EVs with rebates: Orlando Utilities Commission gives consumers $50 for taking an EV test drive and a $200 rebate for purchasing an EV.

- Los Angeles supports used EVs: The Los Angeles Department of Water and Power offers rebates up to $1,500 for buying a used EV.

Designated charging spaces for EVs

When gas-powered vehicles are permitted to park in spaces that have EV chargers, they make it more difficult for owners of electric vehicles to have necessary access to charging. Municipalities can implement signage and parking regulations to reserve these spots for electric vehicles and make this signage available to businesses or utility companies that install charging stations.

EV charging station at a shopping center in Woodbridge, VA. Photo: Ken Hammond, USDA via Flickr

- Rochester, N.Y., reserves charging spaces: Parking spaces with city-installed public charging stations in garages and parking lots are designated for EVs to make sure they have charging access.
- Portland, Ore., focuses on parking for EVs downtown: Portland created a significant strip of EV parking and charging in the downtown area, making EV ownership convenient.
- Oklahoma City lets the city designate spaces for EVs: The city council passed an ordinance to allow the city to designate spaces for the purpose of charging electric vehicles.
- Nashville, Tenn. saves charging spots for EVs: In Nashville, non-electric vehicles are not allowed to park at electric vehicle charging stations.

Discounted parking rates for EVs

Residents can be incentivized to switch to electric vehicles when cities or towns offer free or discounted parking rates for public parking spaces. These rates can be designed to phase out once electric vehicles reach a certain market penetration in the city.

- Aspen, Colo., has free parking for EVs: In Aspen, those with EVs can apply for a permit to park for free in residential areas. This is part of Aspen's 2017 Electric Vehicle Readiness Plan.
- Sacramento, Calif., EV owners get a deal for parking: Sacramento allows EV owners to get special monthly parking rates in designated parking facilities at 50% of the cost.
- New Haven, Conn., gives EVs parking passes: The city offers free on-street parking for EVs with a parking pass.
- Boise, Idaho, has free meter parking for EVs: Boise allows EV owners to apply for a permit at the cost of $10 for free parking in the city for a year.

Vehicle fee-bate program

In order to reduce the costs of switching to electric vehicles, cities and states can implement "fee-bate" programs that charge fees on gasoline-powered cars and use the proceeds to provide rebates for EVs. They have been implemented in Denmark, France, the Netherlands, and Norway, but have yet to be implemented in the United States.

- Boulder fee-bate study: This study examines the possibility of implementing a fee-bate program on the local level in Boulder, which can serve as a model for any local government.
- Vermont fee-bate study: This is a state-wide study looking at the possibilities of creating a fee-bate program to encourage EVs. It reviews the different types of fee-bate policies and the next steps the state might take for enacting the program.
- California fee-bate study: California studied the possibility of enacting a state-wide fee-bate program, which it found could correct market signals that currently push people to buy more polluting vehicles and help low-income consumers access EVs.

Incentives for installing charging stations

Residents who are considering switching to EVs might be deterred by the high cost of installing a private charging station at their home. Local governments can educate their communities about opportunities for financial and other assistance by posting information about them on their website and sharing information during outreach events. Cities can similarly provide tax incentives for city parking lot operators that install EV infrastructure and lobby their utility companies to provide similar benefits.

- State and national incentives for EV charging: The Electrification Coalition provides a dashboard with electric vehicle charging and infrastructure incentive policies by state.
- Charging station incentives in Santa Monica, Calif.: The city provides rebates for residents in multi-unit dwellings to install EV chargers that offset the cost of the purchase and installation.
- Pasadena, Calif., provides incentives for EVs and chargers: Pasadena Department of Water and Power offers residential electric customers a $600 rebate when they install an EV charger in their home. Residents also get a $250 rebate for buying an EV.
- Portland, Ore. General Electric starts a pilot program: The utility will provide up to a $500 rebate for residential customers to install an EV charger in their home. It also provides an income-eligible rebate of up to $1,000.
- Washington, D.C., offers a credit to install chargers: The city offers the Alternative Fuel Infrastructure Credit, which covers 50% of the cost of the purchase and installation of an EV charger in a private residence.

EV advocacy and resolutions

In order to see widespread change, cities need to set public goals for electric vehicle adoption, and work to educate their communities on the necessity of achieving them. Residents need to be informed about the environmental and health benefits of EVs and the incentives available to them in their communities. Local governments can educate the public on their websites or hold events and webinars to reach a wider audience.

Renewable energy resolutions and roadmaps

Electric vehicle goals for residents, adopted at the city level, can help organize and focus efforts to expand EV adoption.

- Salt Lake City provides a roadmap to electrified transportation: The city published an Electrified Transportation Roadmap focusing on EV adoption in the city, a key component of the city's Climate Positive 2040 goal of clean transportation.
- Seattle lays out its EV roadmap: The city plans to have 30% EV adoption by 2030. The roadmap outlines how the city plans to reach this goal, providing a strong example for any city government.
- Los Angeles looks to meet zero emissions with EVs: One part of the city's three-part plan to reach zero emissions by 2028 is for EVs to be 30% of the vehicles on the road and 80% of new car purchases. The city provides a roadmap for how to get there and examples of pilot projects.
- Boston sets goals with zero-emission vehicle roadmap: Boston has set a goal of having 8% of vehicles in Boston be electric, as well as 23% of new car purchases be electric, by 2025, contributing to the state-wide goal of 300,000 registered EVs in the state by 2025.
- Colorado Springs, Colo., assessment of EV adoption: The city has worked with a consultant to develop an EV readiness plan. It includes a roadmap for the city and an assessment of needs and incentives that are predicted to be the most effective.

Educating consumers and the public

Municipalities and utilities can develop public awareness and education programs involving community organizations, businesses, neighborhood associations and schools, and provide resources online and in their offices.

- Chicago runs Drive Electric Chicago: This campaign provides a website with clear information on EVs to make the process simpler for those interested in going electric. It provides a strong example for local governments on how to educate the public on EVs.
- Indianapolis uses partnerships to educate on EVs: The City of Indianapolis partnered with the Clean Cities Coalition and Forth Mobility through the Bloomberg Philanthropies American Cities Climate Challenge for a virtual workshop on workplace charging for employers and municipalities.
- Seattle runs an electric vehicle engagement campaign: The city ran a campaign for clean mobility outreach focusing on underserved communities. The campaign included tabling events, focus groups, surveys, listening sessions and other events involving almost 300 community members.

Outreach events

Municipalities and local advocates can educate residents about electric vehicles by organizing EV events such as showcases or webinars and by partnering with local businesses or auto dealerships. Events should focus on the environmental and economic benefits of EVs as well as drawing attention to affordable, clean transportation options such as public transit and EV carsharing. Organizers should also consider prioritizing events in low-income communities. Cities can especially benefit by providing targeted outreach to parking garage managers, condominium boards, and large property owners regarding the benefits of EV charging infrastructure.

Charlotte, North Carolina's "Electric Avenue" during a National Drive Electric Week event. Photo: Andrew Wojton

- St Petersburg, Fla., EV Events: The Southern Alliance for Clean Energy (SACE) partnered with the St. Petersburg city government to offer a virtual test drive of EVs along with videos about the savings provided by EVs. The event also highlights the city's EV initiatives, like a new green fleet policy and an EV readiness code update.
- Dallas-Fort Worth, Texas, EV webinar: In 2020, the DFW Clean Cities program replaced its in-person outreach event with a well-attended webinar. A recording of the webinar serves as an example for other local governments.
- Charlotte, N.C., celebrated National Drive Electric Week: Charlotte held a downtown street party as part of National Drive Electric Week. The event included demonstrations on how to use EVs and speakers who talked about why they made the switch. The city also surveyed the visitors about why they haven't switched so the city can adapt to make it easier.

Notes

1 Steve Hanley, *CleanTechnica,* "Austin Energy brings its 'EVs are for Everyone' campaign to area school," 15 November 2018, archived at http://web.archive.org/web/20201108130712/https://cleantechnica.com/2018/11/15/austin-energy-brings-its-evs-are-for-everyone-campaign-to-area-schools/.

2 Mary Huber, *Statesman,* "Charging stations at schools to power electric vehicles, student minds," 14 November 2018, archived at http://web.archive.org/web/20210717085751/https://www.statesman.com/news/20181114/charging-stations-at-schools-to-power-electric-vehicles-student-minds.

3 City of Austin, *Plug-In Austin: bringing affordability to the Electric Vehicle scene,* 11 February 2014, archived at https://web.archive.org/web/20201029143356/https://www.austintexas.gov/blog/plug-austin-bringing-affordability-electric-vehicle-scene; American Council for Energy-Efficient Economy, *State and Local Policy Database: Austin,* archived on 11 November 2020 at https://web.archive.org/web/20201111225418/https://database.aceee.org/city/austin-tx; Austin Energy, *Plug-In Austin Electric Vehicles,* archived on 26 November 2020 at https://web.archive.org/web/20201126130952/https://austinenergy.com/ae/green-power/plug-in-austin/.

4 City of Austin, *Austin Community Climate Plan 2015,* available at http://austintexas.gov/sites/default/files/files/Sustainability/FINAL_-_OOS_AustinClimatePlan_061015.pdf; Laura Figi, *Austonia,* "Austin electrifies transit with zero-emission buses," 30 October 2020, archived on 5 May 2021 at http://web.archive.org/web/20210505223458/https://austonia.com/capital-metro-electric-buses; Carrie Hampel, "Austin Texas orders 26 Proterra e-buses," *electrive.com*, 29 September 2021, archived at http://web.archive.org/web/20210929184359/https://www.electrive.com/2021/09/29/austin-texas-orders-26-proterra-e-buses/.

5 U.S. Environmental Protection Agency, *Sources of Greenhouse Gas Emissions,* 27 July 2021, archived at http://web.archive.org/web/20210824041651/https://www.epa.gov/ghgemissions/sources-greenhouse-gas-emissions.

6 American Lung Association, *Health Effects of Ozone and Particle Pollution*, accessed 20 December 2020, archived at http://web.archive.org/web/20201220152223/https://www.stateoftheair.org/health-risks/.

7 American Lung Association, *Living Near Highways and Air Pollution*, 20 April 2020, archived at http://web.archive.org/web/20201203162619/https://www.lung.org/clean-air/outdoors/who-is-at-risk/highways.

8 U.S. Department of Energy, *U.S. Plug-in Electric Vehicle Sales by Model*, January 2020, archived on 11 December 2020 at http://web.archive.org/web/20201211115214/https://afdc.energy.gov/data/10567; Argonne National Laboratory, Light Duty Electric Drive Vehicles Monthly Sales Updates, archived on 10 September 2021 at http://web.archive.org/web/20210910154301/https://www.anl.gov/es/light-duty-electric-drive-vehicles-monthly-sales-updates.

9 Amply, *Unlocking the Cost-Saving Potential of Electric Fuel*, May 2020, archived at http://web.archive.org/web/20210108233705/http://amplypower.com/docs/AMPLY_Power_WP_Unlocking-the-Cost-Saving-Potential-of-Electric-Fuel_2020.pdf.

10 U.S. Department of Energy, *Workplace Charging Challenge: Progress Update 2016*, January 2017, available at https://www.energy.gov/sites/prod/files/2017/01/f34/WPCC_2016%20Annual%20Progress%20Report.pdf.

11 James Horrox, Frontier Group, Matt Casale, US PIRG Education Fund, Environment America Research and Policy Center, *Electric Buses in America*, October 2019, revised February 2020, archived at https://web.archive.org/web/20201231214600/https://frontiergroup.org/sites/default/files/reports/Electric%20Buses%20in%20America%20-%20National%20%28web%29%20revd%20021820.pdf.

12 Ibid.

13 Ibid.