



# An electric vehicle toolkit for local governments and Texas communities



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Written by:

Jamie Friedman, Frontier Group

Luke Metzger, Environment Texas

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Layout: Alec Meltzer

Cover photo: Chargepoint DC fast charging station charging electric vehicles in downtown Austin. Credit: Roschetzky Photography via Shutterstock.com

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# Introduction

**T**exas is all about thinking big and acting boldly. For more than a century, Texas' big, bold spirit has been symbolized by the oil industry. The story of Big Oil in Texas is seen by people around the world as one of risky prospecting, big new discoveries and swashbuckling business leaders.

Today, fossil fuels are beginning to fade into the past. People around the country and around the world are recognizing that it is simply too damaging to our climate, our health and our environment to continue to burn oil and gas the way we have for the last 100 years.

It is time for Texas to embrace a different bold vision of the future – the vision of a state powered by the sun shining upon our communities and the wind blowing across our plains.

Electric vehicles can help make that vision a reality.

Electric vehicles, powered by clean, renewable energy, have become an accessible and affordable alternative to traditional gas-guzzling vehicles. And while federal and state policies have made strides in moving the nation

toward clean transportation, local governments have a key role to play in bringing change to their own communities.

Some Texas communities have already taken the lead by adopting 100% electric vehicle targets for municipal fleets and transitioning their transit buses and school buses to electricity. Many have also worked to encourage residents to make the switch by providing free public charging stations, educating their communities on EV rebates and funding opportunities, and updating their zoning ordinances and building codes to encourage EV parking and charging infrastructure.

The actions of leading EV communities around the state and around the country provide examples for other Texas communities to follow. This toolkit draws from their experiences and provides ideas for local governments on how to accelerate the deployment of electric transportation on our roads. By adopting these and other policies, local governments can have the biggest possible impact on reducing emissions and redefine Texas as the state that's big on clean transportation.

# Electric vehicles clean our air

Pollution from gasoline-powered vehicles has lasting consequences for our health and climate. In the U.S., transportation is the largest source of the carbon pollution that causes global warming. In Texas, transportation produced over half of all emissions of nitrogen oxides (which contribute to the formation of ground-level ozone) as of 2014. Seven metropolitan areas in the state, including Dallas, Houston and El Paso, had over 100 days in 2018 on which half or more of their monitoring locations reported elevated levels of ozone and particulate matter. In fact, Texas was among the 10 worst states for air pollution as of 2020.

This pollution can affect the health of nearby residents. Both ozone “smog” and particle pollution can cause cardiovascular, developmental and reproductive harm, asthma, and even premature death. Some studies have found that living next to a busy road can lead to increased likelihood of heart attacks as well as a higher risk of dementia. 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 are emission-free, and are on the rise across the state and country. There are currently over 50 models on the market, and over 1 million battery-powered and plug-in hybrid EVs have been sold in the U.S. Texas ranks fifth in electric vehicle sales through 2020. In addition, Texas has the ability to charge EVs from a grid increasingly powered by renewable energy, making EVs even better for the environment. Wind and solar energy are growing rapidly, with the state ranking first overall in the country for increase in annual wind energy generation, and fifth for increase



*Electric vehicle charging. Credit: Jessica Lubetsky, Energy Media*

in annual solar generation from 2010 to 2019. As the electricity 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.

## Austin: A leader in electric vehicles

Austin has proven itself to be a leader in electric vehicle adoption. The city set ambitious goals for reducing emissions from vehicles, along with clear, implementable blueprints for how to achieve those goals.

Austin's electric utility, Austin Energy, has played a major role in the transition to electric vehicles in the city and beyond. As early as 2001, Austin Energy began developing a reputation as a leader in renewable energy by creating the GreenChoice program, the top program in the country for buying electricity from renewable energy.<sup>10</sup> In 2006, the city began promoting EVs through the Plug-In Partners National Campaign, a national grassroots campaign made up of local governments, utilities and environmental organizations.<sup>11</sup>

Those efforts ran into a roadblock: automakers were not bringing new electric vehicles to market.<sup>12</sup> In an effort to change that, Austin Energy demonstrated that there was a market by talking to fleet managers and businesses and securing promises to buy EVs when they became available. In doing so, Austin Energy played a role in promoting the growth of EVs not just in Texas, but across the whole country.<sup>13</sup>

In 2011 Austin Energy created the Plug-in EVerywhere network, which supplies charging stations throughout the area.<sup>14</sup> This program currently has over 1,000 charging ports available for an affordable monthly subscription and offers rebates for residents to install charging stations at home.<sup>15</sup> All of these

stations are powered by 100% renewable energy from local wind farms.<sup>16</sup>

Austin Energy also started a program that brings EV charging stations to Austin public schools for staff, students, parents and visitors. As part of the effort, the schools receive informational materials about electric vehicles, educating the next generation of drivers on the environmental and health benefits of going electric.<sup>17</sup>

In 2014, the City Council passed a resolution to reach net-zero greenhouse gas emissions city-wide by 2050, which included recommendations on how to further EV adoption and build electric vehicle charging infrastructure. The plan includes installing solar panels over charging stations to power electric vehicles with renewable energy.<sup>18</sup> In addition, the city's municipal fleet currently has 200 electric vehicles and plans to purchase more.<sup>19</sup>

Austin currently has 12 electric transit buses, and will begin purchasing only electric buses by 2022, resulting in a fully electric transit bus fleet by 2032.<sup>20</sup> In preparation, Austin's transit agency is building charging infrastructure to accommodate nearly 200 fully electric transit buses.<sup>21</sup>

The policies that Austin has implemented have made the city a national leader in supporting electric vehicles. The strategies and tools Austin used should be considered by any town or city in the state.

# A local toolkit to encourage EV adoption

**L**ocal governments around Texas 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.

Many Texas cities have already implemented policies that drive EV adoption. Environment Texas Research & Policy Center surveyed eight of those communities, including some of Texas's most populous cities and their nearby suburbs, on their electric vehicle policies and practices. The results of that survey are shown on the following page, and some of these local efforts are highlighted in the sections to follow.

## 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 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., including three Texas cities, it is 47% cheaper to fuel light-duty vehicles with electricity than gasoline.<sup>23</sup>

### Electric municipal fleets

As a first step to helping their communities transition to electric vehicles, municipalities can set an example



*Electric vehicle in Dallas's municipal fleet. Credit: Susan Alvarez, City of Dallas*

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 taskforce to inform city planning.

- [Houston commits to 100% EVs](#): Houston has established a target to convert its non-emergency light-duty municipal fleet to be 100% EVs by the year 2030.
- [San Antonio ramps up use of EVs](#): San Antonio recently outlined a plan to convert its municipal fleet to electric vehicles, identifying 1,202 vehicles in its fleet that are candidates for electrification.
- [North Central Texas provides Clean Fleets funding](#): Local governments can receive grant funding from



**TABLE 1: ELECTRIC VEHICLE POLICIES IN SELECTED CITIES<sup>22</sup>**

Cities coded in green have taken the specified action.

	Houston	San Antonio	Dallas	Austin	El Paso	Plano	San Marcos	Coppell
Population	2,310,432	1,508,083	1,330,612	950,807	679,813	287,064	63,220	41,645
Electric vehicles in municipal fleet	50, goal of 100% by 2030	Will be added in 2021	6, goal of 100% by 2040	200, goal of 330	2	7		Not specified
Charging stations for municipal fleet								
City-owned public charging stations	30	Goal of 50	Goal of 1,500 by 2030	1000+	18	19	2	
City-owned public charging stations powered by renewable energy	Some stations			All stations				
Utility and city coordination on EV expansion								
Encourage businesses to install workplace charging stations								
Inform residents on EV funding opportunities								
EV-only signs in parking spots with chargers								
Discounted parking rates for EVs in public parking								
Online checklist on how to apply for charging station permits								
Online application for charging station permits								
Electric buses in local transit agency, or plans to add								
EV-ready building codes								
EV-ready zoning ordinances								
EV resolution or strategy								
EV education, public awareness campaign, or outreach events								

the North Central Texas Council of Governments to replace heavy-duty diesel vehicles in their fleets with electric vehicles amounting to 45% of the cost of a new EV.

- [Los Angeles adopts electric garbage trucks](#): Cities have many opportunities to electrify medium- and heavy-duty vehicles. Los Angeles, for example, has committed to a fully electric garbage truck fleet by 2035, with those vehicles eventually producing zero carbon emissions once the city reaches its goal of 100% renewable electricity in 2045.

### 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 fleet at their parking facilities and can prepare for future growth of their electric vehicle municipal fleet by developing a municipal fleet charging plan.

- [Houston city charging stations](#): Houston has installed a hub of electric vehicle charging stations for city vehicles, with nearly 100 charging stations in the city's central fleet garage. The city added more charging stations than necessary for the current number of electric vehicles to anticipate future EV purchases for its municipal fleet.

### 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. Texas 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 municipal 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.

- [San Antonio studies public charging](#): The San Antonio City Council conducted a study that identified locations that best meet demand for charging stations to guide future installation.
- [Houston provides public charging stations](#): Houston has 65 city-owned public charging stations and the program is in the process of expanding.
- [New York City plans to provide curbside charging](#): In order to reach its 20% electric vehicle registration goal by 2025, the city of New York created a plan to implement curbside charging stations in areas with limited off-street parking.



Electric car charging in Dallas. Credit: Susan Alvarez, City of Dallas

## 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.

- [Austin Energy provides subscription program for utility charging stations](#): Customers have access to unlimited charging at Austin Energy's over 1,000 charging ports in the Austin area for a monthly fee.

## 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 buy an electric vehicle.<sup>24</sup> 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.



EV charging station in San Marcos. Credit: Jan Klein, City of San Marcos.

- [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.
- [San Antonio workplace charging factsheet](#): This factsheet outlines benefits for employers who install workplace charging. As of 2016, there were 70 businesses in San Antonio with charging stations.<sup>25</sup>

## 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.

- [Houston charging station permit guidelines](#): This guide provides information for residential and commercial charging station installation in order to help plan for review, permitting and inspection of EV chargers.
- [Boston EV charging station installation guide](#): An example of a charging station installation guide that can serve as a model for cities in Texas.
- [Berkeley, CA, allows EV chargers in on-street parking spaces](#): The Berkeley City Council offered a pilot program from 2018 to 2020 that allowed residents who lacked off-street parking to add EV charging stations to on-street parking spaces. It is the first program of its kind in the country.



EV charging stations powered by solar panels can expand access to renewable energy for car charging. Credit: EVgo

### Charging stations powered by renewable energy

Transitioning to electric vehicles reduces pollution even when they are charged from the 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 charging stations powered with wind energy:](#) All public EV charging stations through Austin Energy are powered by 100% renewable Texas wind.
- [Solar-powered charging kiosk in Austin:](#) Austin Energy also installed an EV charging kiosk with a canopy solar panel coupled with a battery.

### Electric buses

Public transportation plays an important role in cutting greenhouse gas emissions by replacing trips in private cars. Yet, exhaust from diesel and natural gas buses is damaging to public health and produces greenhouse gases.<sup>26</sup> 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.<sup>27</sup> Cities can work with local transit agencies to secure grants to purchase electric transit buses and to build electric bus charging infrastructure.



Dallas DART electric bus. Credit: Dallas Area Rapid Transit

- [Dallas adopts electric buses:](#) Dallas’s transit agency DART purchased seven fully electric buses, each of which reduces carbon dioxide emissions by nearly 244,000 pounds a year.
- [Austin passes initiative for electric buses:](#) Austin’s transit agency Capital Metro will expand its bus lines with an all-electric fleet after residents passed a ballot initiative to fund the transition in 2020.
- [Port Arthur moves toward clean buses:](#) Port Arthur will have 10 fully electric buses by early 2021.

### Electric school buses

Electric school buses are particularly important to improve air quality and protect the health of school-aged children, half of whom ride school buses nationwide.<sup>28</sup> If the U.S. replaced all school buses with electric

buses we could avoid 5.3 million tons of greenhouse gas emissions annually.<sup>29</sup> Cities can work with school districts to electrify school buses and install bus charging stations by applying for state and regional funding.

- [First electric school buses arrive in Texas:](#) The Everman Independent School District received the state’s first electric buses in December 2020, which the district believes will save \$6,000 a year in fuel and maintenance costs compared to diesel buses. The district funded its buses and charging stations with grants from the Volkswagen “Dieselgate” settlement.
- [North Central Texas offers clean school bus program:](#) This program provides grant funding for school districts in the Dallas-Fort Worth area.



EV charging stations in El Paso. Credit: Fernando Berjano, City of El Paso

## 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 the guidelines and sample codes provided by the Southwest Energy Efficiency Project.

### 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 add or upgrade the wiring to support charging stations at parking spaces they lease.

- [Reducing transportation emissions through better zoning](#): Local governments can determine 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](#).
- [Corinth zoning ordinance](#): The municipal code in Corinth requires a set number of electric vehicle parking spaces in lots with over 50 spaces and sets requirements for electric vehicle signage.

## 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 costs 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.

- [Texas Emissions Reduction Plan \(TERP\) incentives:](#) TERP provides many rebate and grant programs to individuals, businesses and local governments that assist in reducing emissions from vehicles, including programs to replace traditional vehicles with EVs.

- [North Central Texas air quality funding:](#) The North Central Texas Council of Governments provides a list of funding opportunities for consumers and fleet owners that help to improve air quality, including purchasing of EVs.

### Charging spaces designated for EVs

When gas-powered vehicles are permitted to park in spaces that have charging stations, 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.

- [Green Parking Program provides signage for EV parking:](#) The Dallas-Fort Worth Clean Cities program offers free signs for alternative fuel vehicle parking in North Texas.
- [Corinth EV charging signage requirement:](#) The municipal code in the City of Corinth requires all EV parking spaces have signage reading “Reserved Parking Electric Vehicles Only.”



EV-charging only sign in El Paso. Credit: Fernando Berjano, City of El Paso



Fuel efficient vehicle only parking spot. Credit: Susan Alvarez, City of Dallas

## 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 rate in the city.

- [San Antonio free parking program](#): Residents in San Antonio with electric vehicles or hybrids can apply for free parking at street parking meters.

## Vehicle fee-bate program

In order to reduce the costs of switching to electric vehicles, cities can implement fee-bate programs that charge fees on gas powered cars and use the proceeds to provide incentives 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 to implementing a fee-bate program on the local level in Boulder, which can serve as a model for any local government.

## 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. In Texas, there are multiple rebates and funding programs available for residential customers to install chargers, some of which cover up to 50% of the cost.<sup>30</sup> Local governments can educate their communities about these opportunities by posting them on their website and sharing them during outreach events. Cities can similarly provide tax incentives for city parking lot operators that install EV infrastructure or lobby their utility companies to provide similar benefits.

- [Charging station incentives in Texas](#): Governments and utilities across Texas offer incentives for installation of EV charging stations. The National Conference of State Legislatures compiled a list of some of these incentives.
- [Austin Energy charging incentives](#): Austin's utility company provides rebates up to \$1,200 for residents and multifamily homes to install private charging stations.

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

- [Houston EV Roadmap](#): Houston's EV Roadmap includes an electric vehicle sales target of 30% by 2030, and a detailed explanation on how the city plans to achieve it.
- [North Central Texas Clean Fleet Policy](#): This policy outlines a strategy to reduce emissions from local fleet operations and has been adopted by 74 entities in North Central Texas.

## 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.

- [Austin Energy EV buyer guide](#): This website provides information on where to buy EVs in Texas, what incentives are available, and where charging stations are located in the area.
- [Electric vehicle resources for North Texas: This website](#) provides resources for EV adoption and charging station installation in North Texas, including a [general EV fact sheet](#) and data on EV registration in Texas counties.





National Electric Drive Week event in San Antonio, 2017. Credit: © Dave Talboys - Talboys Photography

## 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. Organizers should consider holding events in low-income communities, focusing on both the environmental and economic benefits of EVs as well as affordable, clean transportation options such as public transit and EV carsharing. Cities can also benefit from providing targeted outreach to parking garage managers, apartment building boards

and other large property owners regarding the benefits of EV charging infrastructure.

- [Dallas-Fort Worth EV webinar](#): In 2020 the DFW Clean Cities program replaced its in-person outreach event with a webinar that was viewed by nearly 5,000 residents. A recording of the webinar serves as an example for other local governments.
- [Austin area EV events](#): The Austin Area Electric Vehicle Association has a website for all electric vehicle events in the area and recordings of recent webinars.

# Notes

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