SOUTHEAST REGIONAL EV READINESS WORKBOOK

SECTION 2

U.S. DEPARTMENT OF ENERGY

Clean Cities
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Disclaimer

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Questions? Corrections? Suggestions?

Please send an e-mail EVReadiness@cte.tv with any suggestions for improvements or new case studies for future editions of the Southeast Regional EV Readiness Workbook.

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Section II includes an in-depth examination of the roles of various stakeholders, including:

- Government
- Fleet Managers
- Property and Facilities Managers

Section II includes checklists of various actions each stakeholder group may consider in order to enhance their community's efforts to become EV Ready. **It is important to note that not every action is appropriate for every community. Stakeholders may decide to "pick and choose" from the checklist. While every attempt was made to make the checklists exhaustive, there are likely other actions stakeholders can undertake to enable their community to become EV Ready.** Examples of each of the checklist activities are included as part of Section II.

Section II is organized by stakeholder group and includes a checklist and narrative section for each of the three stakeholder groups identified above

Government Checklist

Local and state governments throughout the United States, including those in the Southeast, have developed policies, actions, and incentives to promote widespread electric vehicle adoption within their communities. The following checklist illustrates actions a government entity may undertake in an effort to become EV Ready from a public-sector perspective in terms of internal and community-wide programs, policies, and incentives. The checklist also identifies whether the action is appropriate for local government, state government, or both. **It is important to note that not every action is appropriate for every community. Stakeholders may decide to "pick and choose" from the checklist. While every attempt was made to make the checklist exhaustive, there are likely other actions stakeholders can undertake to enable their community to become EV Ready.**

Complete	*Not Applicable*	GOVERNMENT CHECKLIST	
Codes & Policies			
		Streamline permitting processes for EVSE installation for all scenarios	*Local or State*
		Update zoning codes– Permit Level 1 and Level 2 EVSE outright in every district	*Local*
		Define conditions in which DC Fast Charge stations are zoned for use	*Local or State*
		Update regulations related to maximum parking time limits to establish alternative electric vehicle parking and charging time limits	*Local*
		Authorize on-street EVSE easement	*Local or State*
		Develop or update building regulations to require or provide an incentive to include cable raceways in new construction	*Local*
		Create regulations to include provisions establishing electric vehicle parking and charging station spaces, penalties and fines	*Local*
		Develop or update regulations defining EV parking and appropriate charging station signage	*Local or State*
		Develop, authorize, and implement a policy that establishes a per-use electric charging fees at government owned/controlled electric vehicle charging stations	*Local or State*
		Implement a Green Vehicle Fleet Policy that includes the consideration of EVs	*Local or State*
Incentives			
Financial Incentives			
		Develop and implement a tax credit for the purchase of an EV	*State*
		Develop and implement electric vehicle parking incentives	*Local*
		Adopt a utility rate incentive (encourage time-of-use rate structures)	*Local*
		Develop and implement a tax credit for the purchase of EVSE	*State*

Non-Financial Incentives			
		Incentivize EVs through parking incentives	*Local*
		Allow HOV and/or HOT lane access without a charge	*State*
Vehicles & Infrastructure			
		Install EVSE for charging of government fleet EVs and employee EVs that want to charge at work	*Local or State*
		Purchase electric vehicles for your fleet	*Local or State*
Outreach			
		Develop and/or participate on a committee to leverage the resources of community stakeholders to help accomplish EV Readiness actions	*Local or State*
		When available, utilize the resources available through academic institutions to create partnerships to support promotion of EVs	*Local or State*
		Participate in your Clean Cities Coalition and your community's EV Readiness Committee	*Local or State*
		Educate fleet drivers to be able to answer questions of curious citizens	*Local or State*
		Share your success stories of adopting EV technology with other fleets	*Local or State*
		Place signage on your vehicle indicating it has zero tail-pipe emissions	*Local or State*

The following section includes a discussion of each of the actions included in the checklist along with examples of actions or activities a government entity might undertake to complete the action in an effort to become EV Ready.

Codes & Policies

Changes in codes and policies can remove barriers that previously deterred or prohibited deployment of EVs and/or installation of EVSE. Adoption of certain codes and policies can also encourage the use of EVs within a community. Some of the suggested actions below are relatively simple changes while others may require adoption by a jurisdiction's governing body.

Streamline permitting processes for EVSE installation for all scenarios

Electric vehicle operation requires installation of accessible EVSE. In some jurisdictions, permits may be required for EVSE installation. However, permitting requirements vary across jurisdictions, and in some cases, permits are not required at all. One basic step jurisdictions can take if permits are required is to streamline the permitting process.

For jurisdictions with permitting requirements, it is critical that these governments ensure their code enforcement officials are educated on the standards outlined in the National Electric Code Article 625 and all other applicable state and municipal codes applicable to EVSE installation. Once these personnel are educated, permitting the use of EVSE is no more difficult than permitting the use of a Heating Ventilation and Air Conditioning Unit (HVAC). EVSE is another accessory piece of equipment for electrical inspection. Section III of the workbook includes considerations for the installation of on-street charging equipment (Section 3.1.1), off-street charging equipment (Section 3.1.2), and residential charging equipment (Section 3.1.3). Electrical inspectors that want further education on EVSE are encouraged to contact their local Clean Cities Coalition for educational resources or familiarization training. Contact information for Clean Cities Coalitions throughout the Tri-State region (Alabama, Georgia and South Carolina) is included below:

Alabama Clean Fuels Coalition	http://www.alabamacleanfuels.org/
Clean Cities Atlanta	http://www.cleancitiesatlanta.net/
Palmetto State Clean Cities	http://www.palmettocleanfuels.org/

Depending on the code and procedures a state or municipal government has in place it may be necessary to develop and adopt ordinances or procedures to expedite or streamline the EVSE permitting process.

Possible Policies:

- Develop simple permitting process that includes information necessary to ensure safe EVSE installations
- Develop, adopt, and implement a checklist for use by inspectors and related government departments in permitting and inspection to provide consistency and efficiency throughout the jurisdiction

- Provide readily accessible and user friendly information on websites defining EVSE installation requirements and processes and offer resources to prepare the applicant for the permitting process
- Prepare educational smart sheets, videos, and other handouts for private and government agencies charged with electrical permitting
- Implement a public, online version of the permitting application and process
- Create a specialized unit in inspection divisions to help reduce the time associated with EVSE inspections
- Adopt processes where registered, licensed, or screened electricians can self-certify that equipment has been installed according to codes (a/k/a spot inspections), such as where installations do not require electrical system upgrades
- Establish 2-hour windows for site inspections

Example:

- Refine local strategies using lessons learned from other jurisdictions. See the Best Practice study: www.plugingeorgia.com/pdf/bppaper05.13.11.pdf

Update zoning codes —Permit Level 1 and Level 2 EVSE in all zoning districts

EV owners require access to charging infrastructure, often for extended periods of time. For example, Level 1 EVSE requires between eight to twelve hours to fully charge an empty battery. Zoning codes should clearly define that the installation and use of an EVSE is a permitted use and define what type of, and where any, restrictions apply. The zoning regulations should be as broad as possible to allow jurisdiction-wide electric charging infrastructure.

Since Level 1 charging uses 120V, there should be limited restrictions on appropriate locations for Level 1 EVSE installations. Level 2 charging requires 240V and installation is not significantly different from common HVAC installations. Level 2 chargers are likely to be the most common type of EVSE installation as it provides significantly reduced charging times, is simple to install, and does not require the significant infrastructure upgrades that DC fast chargers necessitate. DC fast chargers will likely only be permitted in certain districts because this infrastructure requires 480V. DC fast chargers allow for rapid electric vehicle charging, serving electric vehicles that are running low on battery power while away from their primary charging location. Without access to a large network of DC fast charge stations, mass adoption of electric vehicles will be restrained in part due to range anxiety and the extended period of time need to charge at Level 1 and Level 2 charges.

Possible Policies:

- Amending zone district regulations to allow for EVSE as permitted uses outright in as many districts as possible, clearly stating which types of EVSEs are allowed in each district and defining any limitations

- Adding a comprehensive electric vehicle charging infrastructure section or chapter to the zoning code that contains types of EVSEs permitted and location of permitted uses as well as design standards and incentives provided

Example:

- A model zoning update ordinance defining EVSEs as permitted accessory uses and structures and defining the type and permitted location of EVSEs is included Section 3.4.4.

Define conditions in which DC Fast Charge stations are zoned for use

DC Fast Charge Stations should be permitted as free-standing structures in districts where installation is not contingent on other variables to allow for the development of city-wide and state-wide networks of DC Fast Charge stations. This will encourage the creation of such stations by private entrepreneurs, and serve electric vehicles that are running low on battery power while away from their primary charging location, either at home or work. This may not be appropriate in every zone.

Possible Policies:

- Amending zoning codes to allow DC Fast Chargers as permitted principal use and structures in certain districts, ideally in districts where automobile and gas stations are allowed.
- Adding a comprehensive electric vehicle charging infrastructure section or chapter to the local zoning code that contains types of charging stations allowed, the permitted locations, the required design standards, and any incentives.

Example

- A model zoning update ordinance defining DC Fast Charge stations as permitted principal uses and structures and defining the permitted location of each is included in Section 3.4.4.
- Washington State passed legislation in 2009 to encourage use of EVs and the required infrastructure. For information from Washington State Department of Commerce regarding *Planning for Electric Vehicle Infrastructure* visit: http://www.commerce.wa.gov/DesktopModules/CTEDPublications/CTEDPublicationsView.aspx?tabID=0&ItemID=8958&MId=944&wversion=Staging.

Update regulations related to maximum parking time limits to establish alternative electric vehicle parking and charging time limits

Because the majority of public charging stations will be either Level 1 or Level 2 charging stations, which can take anywhere between four and twelve hours to recharge an electric vehicle, vehicles using these publicly accessible charging stations may remain parked and charging in the same spot for an extended period of time. Some areas have maximum parking time limits, usually two hours. Such time limits may render a full recharge impossible, and inhibit the mass adoption of electric vehicles. If potential EV owners do not believe there is adequate infrastructure available to facilitate quick and easy charging of

their EVs, this may deter them from purchasing an electric vehicle. As such, where these time limits exist, governments may need to adjust parking limitations for electric vehicles to allow effective recharging.

Possible Policies:

- Amend codes to create exceptions to or extend hours of parking for electric vehicles that are parked and charging at electric vehicle parking stations in zones subject to short parking time limits
- Update regulations to create specific time limit standards for electric vehicle parking and charging, including (i) determining and communicating time limits to the public and (ii) setting and enforcing fines and penalties for parking violations.

Authorize on-street Charging Station easement

On-street charging station infrastructure is an option some jurisdictions might consider. In some cases, this infrastructure would be located on public rights-of-way. This scenario requires legal steps in addition to permitting and inspections. In addition, the requirements for on-street installations may be more complicated; namely, trenching and placing underground conduits under already constructed sidewalks and near trafficked roadways.

Possible Policies:

- Commence partnerships or make appropriate preparations with utility companies to install additional electrical conduit and junction boxes in trenches in street light conduits on blocks where charging stations are planned for future installation
- Prepare template agreements authorizing entry into public rights-of-way to install charging stations and electrical conduit

Examples:

- Create encroachment agreements. A sample City of Atlanta Encroachment Agreement is included in the Section 3 (Section 3.4.5).

Develop or update building regulations to require or provide an incentive to include cable raceways in new construction projects

The cost of installing charging station infrastructure is significantly reduced during the initial construction phase compared with installing the same equipment post-construction due to the cost associated with trenching and the installation of new underground conduit. In addition, the time associated with permitting and inspection can be minimized if inspections occur concurrently with the inspections of other electrical components during the initial construction phase of a building.

Possible Policy:

- Develop and adopt design regulations, standards, and guidelines that encourage or require the installation of electric cable raceways or conduit as a component of all new construction and expansion of parking facilities.

Example:

- Familiarize local building owners, public parking managers, and property manager associations with the building practice of establishing cable raceways (from the building's main electrical service to parking areas) in new construction projects
- The City of Vancouver, Canada adopted Green Construction and Green New Construction Standards in 2008 that require the installation of a cable raceway from the building's electric panel to an enclosed outlet box in the home's garage or carport. Vancouver's Code for Cable Raceway installation for PEVs is as follows:
  - Each dwelling unit shall have a cable raceway leading from the electricity circuit panel to an enclosed outlet box in the garage or carport.
  - A raceway not smaller than size 21 shall be provided to accommodate future conductors of a separate branch circuit intended to supply a future receptacle for use with the electric vehicle charging system. http://vancouver.ca/ctyclerk/cclerk/20080626/documents/pe5.pdf.

Create regulations to include provisions establishing electric vehicle parking and charging station spaces, penalties, and fines

Once electric vehicle parking spaces are designated, regulations should be developed to ensure that non-electric vehicles do not use these spaces. Moreover, if a government intends to limit use of electric vehicle charging stations to vehicles actually charging, the government should take appropriate actions to make such a policy clear. For example, a jurisdiction may wish to restrict electric vehicle charging stations to parking while charging only, defining "charging" as the vehicle being plugged-in to the charging station. Such policies are important, particularly in areas with limited parking. If non-electric vehicles and non-charging electric vehicles park in designated electric vehicle parking spaces or charging stations, it will negate the incentive that helps to reduce range anxiety and encourages mass market adoption of EVs

Possible Policy:

- Governments can create regulations for electric vehicle only parking and charging stations as well as define violations and penalties.

Example:

- A model ordinance updating traffic and road rules and regulations is included in Section 3.4.3.

Develop or update regulations defining EV parking and appropriate charging station signage

Consistent signage for electric vehicle charging stations throughout the tri-state region will help raise awareness of available infrastructure by making it quickly recognizable throughout the region. Consumers in the market for an electric vehicle will have more confidence in their ability to charge away from their home if they see signage indicating the availability of charging stations on a day-to-day basis. Charging stations are already deployed in cities throughout Alabama, Georgia and South Carolina. The most common charging station signage in the Southeast should be utilized for all future charging station deployments.

Possible Policy:

- Governments can develop or update regulations that clearly and thoroughly define design standards and criteria for electric vehicle and charging station signage.

Example:

- A signage guide and preferred signage options are provided in Section 3.2.10.

Develop, authorize, and implement a policy that establishes a per-use electric charging fees at government owned/controlled electric vehicle charging stations

The municipality should establish a committee that can determine fair and appropriate fees to be implemented at government owned charging stations. A reasonable fee will help to recover initial capital equipment costs, installation costs, maintenance fees, and the cost of electricity for charging.

Implement a Green Vehicle Procurement Policy that includes consideration of EVs

Governments have the opportunity to be leaders in the community by promoting the use of electric vehicles through the adoption of Green Vehicle Procurement policies. There are significant environmental, fiscal, and community relation benefits to utilizing electric vehicles in government fleets, which can be leveraged to promote wider adoption of similar policies in the public sphere. As noted in the Outreach Section below, governments can highlight their efforts by placing signage on EVs indicating the vehicle has zero tail-pipe emissions.

Possible Policy:

- Governments can implement procurement policies requiring a percentage of all new vehicle purchases for government fleets to be comprised of electric vehicles.

Example:

- The city of San Jose, CA has developed a comprehensive and effective green fleet policy that provides a purchasing strategy that helps fleet managers acquire the most appropriate vehicle or equipment, minimize fuel consumption, improve driver satisfaction and equipment life as well as reduce costs[1].

Incentives

To facilitate wide and rapid electric vehicle deployment, local and state incentives can be implemented to encourage the purchase of electric vehicles. There are options for both financial and non-financial incentives as described in the actions below. Currently, consumers may be persuaded to purchase an electric vehicle because of the lower cost of electricity compared to gasoline. Additional incentives could be another motivator for EV purchases.

Financial Incentives

Develop and implement tax credit for the purchase of EV

By implementing a tax credit for the purchase of an EV, consumers are able to buy an electric vehicle and realize potential savings on their tax liability. This tax credit can make the electric vehicles more cost comparable to similar standard vehicles in the market place. Many consumers are hesitant to buy electric vehicles despite the financial savings on gasoline over time because of the large up-front cost. A tax credit helps to address the cost differential.

Possible Policy:

- States can adopt legislation providing tax credits for qualified electric vehicle purchases.

Examples:

- Georgia provides a tax credit for the purchase or lease of a new zero-emission vehicle. The amount of the tax credit is 20% of the vehicle cost, up to $5,000. For more information, visit: http://www.afdc.energy.gov/laws/law/GA/5180
- South Carolina offers and income tax credit for in-state purchase or lease of a new PHEV. The maximum allowed credit is $2,000. For more information, visit: http://www.afdc.energy.gov/laws/law/SC/10252
- Maryland offers a tax credit of up to $2,000 against the imposed excise tax for qualified PEV purchases. For more information, visit: http://www.afdc.energy.gov/laws/law/MD/8381

[1] City of San Jose, CA, City Policy Manual: Green Fleet Policy, http://sanjoseca.gov/esd/PDFs/GreenFleetPolicy_091707.pdf, accessed October 18, 2012

Develop and implement tax credit for the purchase of EVSE

States may also implement tax credits to help off-set the costs associated with the purchase of EV charging infrastructure. As with vehicle tax credits, EVSE tax credits have the potential to lessen the burden of the additional costs associated with EV use.

Possible Policy:

- States can adopt legislation providing for tax credits for qualified EVSE purchases.

Examples:

- Georgia allows eligible business enterprises to claim an income tax credit for qualified EVSE purchases. The amount of the credit is 10%of the cost of the EVSE, up to $2,500. For more information, visit: http://www.afdc.energy.gov/laws/law/GA/5182

Develop and implement electric vehicle parking incentives

In jurisdictions where parking is expensive or limited, the availability of parking incentives for PEVs, including free, reduced cost, or preferential parking, may make the purchase of electric vehicles more attractive to consumers.

Possible Policy:

- Implement an all-electric vehicle incentive pilot program that offers free parking to all electric vehicles in designated City owned garages near major destination centers.
- Free parking for EVs at city run parking meters
- Low cost charging at public electric vehicle stations

Examples:

- The City of Cincinnati implemented the All-Electric Vehicle Incentive Pilot Program that offers free parking in identified city-owned garages, a city parking lot, and at all parking meters within the city limits.[2]

Adopt a utility rate incentive (to encourage time-of-use rate structures)

Some utilities have designed rates that not only reduce the cost of charging, but also encourage users to consume the excess energy generated at night by offering super off-peak rates.

[2] City of Cincinnati Office of Environmental Quality, "Free Parking for All-Electric Vehicles." Accessed October 18, 2012. http://www.cincinnati-oh.gov/oeq/residential-programs/electric-vehicle-free-parking/

Example:

- Southern California Edison provides two optional rate structures that incentivize electricity as fuel for consumers' vehicles[3].
  1. **Home & Electric Vehicle Plan (TOU-D-TEV - PDF)** is designed for residential customers who combine lighting, heating, cooking and power, in a single family accommodation, with charging electric car(s) on the same meter. Under this schedule, you may receive substantial savings if you charge your electric car(s) during super off-peak hours.

  2. **Electric Vehicle Plan (TOU-EV-1 - PDF)** is designed for residential customers who charge their electric car(s) at their primary residence, on a separate meter provided by SCE. Under this schedule, you receive substantial savings if you charge your electric car(s) during off-peak hours

Non-Financial Incentives

Incentivize EVs through parking incentives

Electric vehicle drivers will benefit from the availability of parking spaces equipped with charging stations. As electric vehicles become more common, it is expected that parking property owners will likely dedicate more parking spaces for EV parking and charging stations. While the availability of such parking infrastructure is an important step to promote EV deployment, its benefits can be maximized if regulations and enforcement provisions are in place to ensure PEV only access. Additionally, by designating parking spaces as strictly for electric vehicles, consumers are given another incentive for purchasing an electric vehicle.

Possible Policies:

- Update regulations to state that electric vehicle parking spaces or charging stations are included in the count towards minimum parking requirements;
- Develop an incentive program where each parking space that is converted to or is constructed newly as an electric vehicle parking space and/or an electric vehicle charging station counts as a multiple of parking spaces (i.e., three X) toward meeting parking requirements.

Example:

- A model zoning update ordinance defining conversions of parking spaces to electric vehicle parking or charging stations as counting towards minimum parking requirements and proposing a parking incentive for electric vehicle only parking or charging station is included in Section 3.4.4. The City of Atlanta is currently in the process of submitting a similar proposed ordinance to update its zoning codes.

[3] http://www.sce.com/info/electric-car/residential/rate-plans.htm

Allow HOV and/or HOT Access without charge

Some highways and roadways in congested urban areas restrict vehicles in a given lane to those with two or more passengers (HOV lanes) or those that pay a toll if they do not meet minimum passenger requirements (HOT lanes). The HOV lanes promote emission reduction by encouraging carpooling; both models are intended to reduce travel time.

Possible Policy:

- Allow EVs access to HOV or HOT lanes, regardless of the number of passengers.

Examples:

- The State of Georgia offers a special license plate for alternative fuel vehicles, which allows access to designated HOV and HOT lanes.
- The Arizona Department of Transportation has allowed electric vehicles and specified other AFVs to use the HOV lanes, regardless of the number of passengers as long as qualified vehicles display AFV plates or stickers, which are available from the Arizona Department of Transportation, Motor Vehicle Division.
- Electric and other alternative fuel vehicles meeting California and federal emissions standards that have a California Department of Motor Vehicles clean air vehicle sticker may use HOV lanes even if they contain a single occupant.

Vehicles & Infrastructure

Deployment of EVs and the availability of adequate infrastructure are key components of a successful EV Ready community. Governments can not only purchase EVs for their fleets, but also make provisions for not only fleet vehicle charging, but also workplace charging for their employees.

Install EVSE for charging government fleet EVs and employees that want to charge at work

Governments purchasing EVs for fleet use will also need to install charging stations to provide charging for their fleet vehicles. These governments can provide additional support for EV Ready activities in their community by allowing their employees to have access to the charging stations to charge personal EVs while they are at work. There may also be circumstances where the charging stations could be made available to the general public.

Possible Policy:

- Governments purchasing EVs and installing charging stations are leading by example and may decide to allow employees to use the charging stations to charge personal electric vehicles. A

government may also decide to enter into shared-parking agreements with community businesses to use the charging stations under certain conditions.

Example:

- The City of Austin is partnered with Austin Energy to deploy EVSE throughout the Austin region See Plug-in EVerywhere for more details at http://www.austinenergy.com/about%20us/environmental%20initiatives/Plug-In%20Partners/PIEstationhostmap.pdf

Purchase electric vehicles for your fleet

Electric vehicles are capable of meeting a variety of fleet applications. Government fleet managers should consider a number of factors when deciding to incorporate electric vehicles into their fleet. These factors include, but are not necessarily limited to:

- Required range of vehicle
- Geography of route
- Time between travel
- Lifetime costs
- Availability of charging infrastructure

Light duty fleet vehicles that are utilized consistently are options for high-mileage fleets because the more miles driven the faster the return on investment. An up-to-date list of commercially available light duty EVs are listed at http://www.afdc.energy.gov/afdc/vehicles/search/light

Medium and heavy-duty vehicles, such as delivery trucks, whose operators encounter frequent stop-and-go behavior are also candidates for EV technology. Similar efficiencies can be found in a heavy-duty fleet of transit buses that operate circulator bus routes. Fleets whose primary purpose requires trucks to haul heavy equipment or packaging should consult http://www.afdc.energy.gov/afdc/vehicles/search/heavy for available medium and heavy-duty EVs.

Government fleet managers may be able to find other applications for EVs. For example, Neighborhood Electric Vehicles (NEVs) may be appropriate for activities such as park maintenance or for checking parking meters. Because the market is always changing, other resources providing comprehensive listings of commercially available electric vehicles are listed below:

- Plug-in America: www.pluginamerica.org/vehicles
- Go Electric Drive: www.goelectricdrive.com/index.php/virtual-showroom

Outreach

Highlighting your successes and engaging with other stakeholders in your community who support EV Readiness activities are another way governments can support their community's efforts to become EV Ready.

Develop and/or participate on a committee to leverage community stakeholders to help accomplish EV Readiness actions

A committee may already exist either within the government or within the community that is an appropriate venue to promote EV Readiness actions. If there is no such group in your area, local government may choose to take the lead on initiating the formation of an EV Readiness Task Force. Participation in a committee or task force allows citizens in the EV community to connect and act in the public interest to promote EV Readiness activities.

Possible Actions:

- Participate in local/regional stakeholder council that meets regularly to create a plug-in readiness plan, and follow implementation
- Contribute to an education plan to promote EV Readiness activities
- Develop and launch an appropriate marketing plan to promote EVs while also highlighting energy use and security benefits; the marketing plan should be tailored to meet the needs and resources of the community
- Develop materials to educate the drivers of tomorrow by reaching students of all levels (elementary-college) with EV-related curricula

Example:

- See the Clean Cities sponsored websites Plug-in Georgia (www.plugingeorgia.com/) and Plug-In Alabama (http://plug-in-alabama.org/).

When available, utilize the resources available through academic institutions to create partnerships to support promotion of EVs

Faculty and students at local colleges and universities can be valuable resources to participate in research activities in support of EV Readiness activities or provide man-hours to local projects to meet certain academic requirements.

Possible Actions:

- Partner with local academic to create classes the investigate issues surrounding electric vehicle adoption issues in your community and leverage the resources and ideas of the students to address those barriers.

Example:

- The City of Atlanta partnered with the Emory University Business School to develop a case competition addressing the need to encourage the quick adoption of electric vehicles in the Atlanta region. Teams from across Georgia competed for a $5,000 grand prize to see who could come up with the most viable method for encouraging the widespread adoption of electric vehicles within the region. For more information, visit: https://community.bus.emory.edu/program/atlantacars/Pages/home.aspx

Participate in Clean Cities Coalitions and your community's EV Readiness Committee

Governments are also encouraged to engage with their local Clean Cities Coalition. The Clean Cities program is sponsored by the U.S. Department of Energy and supports public and private partnerships to advance the nation's economic, environmental, and energy security by supporting local actions to reduce petroleum consumption in transportation. There are nearly 100 coalitions throughout the United States, including three coalitions serving the tri-state region of Alabama, Georgia, and South Carolina. The coalitions are a valuable resource and are available to help you find answers to any questions you may have regarding your community's EV Readiness.

Clean Cities Coalitions offer a number of opportunities to become involved in the promotion of EV Readiness actions. Jurisdictions are encouraged to become involved with their local coalition to gain insight into what other cities are doing to become EV Ready. Clean Cities Coalitions in the tri-state region include:

Alabama Clean Fuels Coalition	http://www.alabamacleanfuels.org/
Clean Cities Atlanta	http://www.cleancitiesatlanta.net/
Palmetto State Clean Cities	http://www.palmettocleanfuels.org/

For a list of all Clean Cities Coalitions throughout the U.S., visit:
http://www.afdc.energy.gov/cleancities/coalitions/coalition_contacts.php

For a list of upcoming Clean Cities Coalition events please see:
http://www1.eere.energy.gov/cleancities/events.html

By participating in Clean Cities Coalition events, governments can gain insight into what other cities are doing to become EV Ready. Best practices can be identified, and local representatives can collaborate to determine ways to improve their EV Readiness.

Governments are also encouraged to participate in the community's EV Readiness Committee or Task Force. Many communities are providing a forum for EV stakeholders to engage to promote activities to

ensure they are EV Ready. If such a committee exists in the community, governments will be a valuable participate based on fleet experience operating EVs.

Educate fleet drivers to be able to answer questions of curious citizens

EV drivers have the potential to be the best ambassadors for EVs and thus promote EV Readiness activities. Informed drivers can answer questions posed by curious citizens who see the EVs operating within the community.

Share your success stories of adopting the EV technology with other fleets

Peer to peer exchanges are often the best conduit of information. As governments adopt EVs into their fleets and gain valuable operational experience, they are in a position to share their experience with other governments considering EV purchases. There is value in learning about both the successes related to EV deployment as well as the challenges fleets have faced and the steps they took to overcome any barriers. Governments are encouraged to participate in tradeshows, conferences, neighborhoods meetings, and stakeholder meetings to share their experiences.

Place signage on your vehicles indicating it has zero tail-pipe emissions

One major benefit to adding EVs to your fleet is the value of green marketing. Government fleets have the opportunity to promote the benefits of EVs by placing signage on the vehicle. Promoting the benefits of EVs not only gives your fleet recognition, but also raises awareness in the community.

Examples:

- Companies such as Staples and Coca-Cola have incorporated electric vehicle technology into their fleets. Below are several examples of vehicle signage used to promote the use of the technology on their fleet vehicles.


Coca-Cola
Did You Know This
Hybrid Electric Truck
Helps Reduce Emissions
In Our City?
HYBRID
ELECTRIC

Fleet Manager Checklist

Fleets can play a key role in a community's efforts to become EV Ready by incorporating EVs into their business operations. Fleets can be EV Champions when placing signage on EVs highlighting the benefits of the technology. Fleets adopting EVs are also leaders by example and your practices will hopefully encourage other fleets to deploy EVs.

The following checklist illustrates actions fleet managers may undertake in an effort to become EV Ready. **It is important to note that not every action is appropriate for every community. Stakeholders may decide to "pick and choose" from the checklist. While every attempt was made to make the checklist exhaustive, there are likely other actions stakeholders can undertake to enable their community to become EV Ready.**

In addition to the checklist, fleet managers are encouraged to refer to the U.S. Department of Energy's *Plug-In Electric Vehicle Handbook for Fleet Managers.* A copy of the handbook is available at: http://www.afdc.energy.gov/pdfs/pev_handbook.pdf

Complete	*Not Applicable*	Fleet Managers Checklist
Vehicles & Infrastructure		
		Assess Requirements & Purchase EVs for your fleet
		Consider employee and public accessibility when siting charging stations to support your fleet vehicles
Support Organizational Policies		
		Promote adoption of a Green Fleet Policy that includes electric vehicles
		Ensure organizational sustainability plan includes transportation-related strategies
		Support a champion from within your department to participate on a committee to leverage community stakeholders to accomplish EV Readiness actions
Outreach		
		Educate fleet drivers to be able to answer questions of curious citizens
		Share your success stories of adopting the EV technology with other fleets
		Place signage on your vehicle indicating it has zero tail-pipe emissions
		Participate in Clean Cities Coalition and your community's EV Readiness Committee

The following sections include discussions of each of the actions included in the checklist along with examples of actions or activities a Fleet Manager might undertake to complete the action in an effort to become EV Ready.

Vehicles & Infrastructure

Deployment of EVs and the availability of adequate infrastructure are key components of a successful EV Ready community. Fleet managers can not only purchase EVs for their fleets, but also make provisions for not only fleet vehicle charging, but also workplace charging for their employees.

Assess Requirements and Purchase EVs for your fleet

Electric vehicles are capable of meeting a variety of fleet applications. Fleet managers must consider a number of factors when deciding to incorporate electric vehicles into their fleet. These factors include, but are not necessarily limited to:

- Required range of vehicle
- Geography of route
- Time between travel
- Lifetime costs
- Availability of charging Infrastructure

A variety of vehicle options exist in the light, medium, and heavy-duty vehicle classes. **Light-duty fleet** vehicles that are utilized consistently are great options for high-mileage fleets because the more miles driven the faster the return on investment. An up-to-date list of commercially available light duty PEVs are listed at http://www.afdc.energy.gov/afdc/vehicles/search/light.

Medium and heavy-duty vehicles, such as delivery trucks, whose operators encounter frequent stop-and-go behavior are great candidates for PEV technology. Similar efficiencies can be found in a Heavy Duty fleet of transit buses that operate circulator bus routes. Fleets whose primary purpose requires trucks to haul heavy equipment or packaging should consult http://www.afdc.energy.gov/afdc/vehicles/search/heavy for available medium and heavy-duty EVs.

Fleet managers may be able to find other applications for EVs. For example, Neighborhood Electric Vehicles (NEVs) may be appropriate for on-site security or campus activities. Because the market is always changing, other resources providing comprehensive listings of commercially available electric vehicles are listed below:

- Plug-in America: www.pluginamerica.org/vehicles
- Go Electric Drive: www.goelectricdrive.com/index.php/virtual-showroom

Consider public accessibility when siting charging stations to support your fleet vehicles

With electric vehicle charging infrastructure in place, fleet managers can play a vital role in promoting adoption of EVs by making their charging stations available not only to their fleet vehicles, but also to their organization's employees and the general public. While access to other vehicles may not always be feasible, it is a consideration that could support your community's EV Readiness activities by creating additional opportunities for charging. Fleet managers should take both employee access and general public access into consideration when choosing the location for the charging stations to support your fleet vehicles.

Organizational Policy

Fleet managers have the opportunity to become champions of EV technology within their organizations. You may be able to support the purchase of EVs and influence your organization to adopt a green fleet policy. Transportation operations using EVs also contribute to your organization's sustainability efforts and you can be champion of EVs among your peers in your community's efforts to become EV Ready.

Promote adoption of a Green Fleet Procurement Policy

There are significant environmental, fiscal, and community relation benefits of utilizing electric vehicles in fleets. Organizations may choose to adopt procurement policies which require at a minimum that consideration be given to the purchase of clean fuel vehicles and may go so far as to require a certain percentage of vehicle purchases to be clean. Fleet managers can support adoption of green fleet procurement policies.

A number of nationally-recognizable companies are adopting clean vehicle technologies into their fleets, which includes EVs. Two Atlanta-based companies, UPS and Coca-Cola, are leading the way in their industries.

- **UPS:** In 2011, UPS announced that "…its fleet of alternative fuels and technology delivery vehicles has driven 200 million miles since 2000." As of 2011, the company had "…explored eight different alternative fuel technologies…" including all-electric vehicles.[4]
- **Coca-Cola**: In July 2011, Coca-Cola joined the National Clean Fleets Partnership. Member companies work with DOE to reduce petroleum and diesel use in their fleets. Coca-Cola is leading the way, operating more than 650 hybrid medium-duty trucks.[5]

[4] UPS Pressroom, "*Expanding UPS Green Fleet Travels 200 Million Miles*." Accessed October 18, 2012. http://pressroom.ups.com/Press+Releases/Archive/2011/Q1/Expanding+UPS+Green+Fleet+Travels+200+Million+Miles

Ensure organizational sustainability plans include transportation-related strategies

Many organizations are beginning to report on their sustainability efforts and the reductions they are achieving. Fleet managers have the opportunity to contribute to these efforts by supporting inclusion of petroleum reduction metrics in an your organization's sustainability plans. Successful transportation-related strategies, such as deployment of EVs in your fleet, contribute to reduced fuel consumption resulting in lower operating costs and lower vehicle-related emissions.

Support a champion from within your department to participate on a committee to leverage community stakeholders to accomplish EV Readiness actions

As a fleet manager, you will have valuable experience related to the operations of EVs in your fleet. You are encouraged to identify yourself as an EV champion (or perhaps someone from your staff) and support participation in your community's EV Readiness Committee. If your community does not have a committee or another venue through which to promote EV Readiness activities, you may consider championing the creation. Participation in a committee or task force allows citizens in the EV community to connect and act in the public interest to promote EV Readiness activities.

Outreach

Educate fleet drivers to be able to answer questions of curious citizens

EV drivers have the potential to be the best ambassadors for EVs and thus promote EV Readiness activities. Informed drivers can answer questions posed by curious citizens who see EVs operating within their community.

Share your success stories of adopting the EV technology with other fleets

Peer to peer exchanges are often the best conduit of information. As EVs are adopted into fleets, fleet managers will gain valuable operational experience and will be in a position to share their experience with other fleets considering EV purchases. There is value in learning about both the successes related to EV deployment as well as the challenges fleets have faced and the steps they took to overcome any barriers. Fleet managers are encouraged to participate in tradeshows, conferences, neighborhood meetings, and stakeholder meetings to share their experiences.

[5] Coca-Cola Company Press Center, "Coca-Cola Joins National Clean Fleets Partnership." Accessed October 18, 2012. http://www.thecoca-colacompany.com/dynamic/press_center/2011/07/national-clean-fleets-partnership.html

Place signage on your vehicles indicating it has zero tail-pipe emissions

One major benefit to adding EVs to your fleet is the value of green marketing. Government fleets have the opportunity to promote the benefits of EVs by placing signage on the vehicle. Promoting the benefits of EVs not only gives your fleet recognition, but also raises awareness in the community.

Examples:

- Companies such as Staples and Coca-Cola have incorporated electric vehicle technology into their fleets. Below are several examples of vehicle signage used to promote the use of the technology on their fleet vehicles.

Participate in Clean Cities Coalition and your community's EV Readiness Committee

Fleet managers are also encouraged to engage with their local Clean Cities Coalition. The Clean Cities program is sponsored by the U.S. Department of Energy and supports public and private partnerships to advance the nation's economic, environmental, and energy security by supporting local actions to

reduce petroleum consumption in transportation. There are nearly 100 coalitions throughout the United States, including three coalitions serving the tri-state region of Alabama, Georgia, and South Carolina. The coalitions are a valuable resource and are available to help you find answers to any questions you may have regarding your community's EV Readiness.

Clean Cities Coalitions offer a number of opportunities to become involved in the promotion of EV Readiness actions. Jurisdictions are encouraged to become involved with their local coalition to gain insight into what other cities are doing to become EV Ready. Clean Cities Coalitions in the tri-state region include:

Alabama Clean Fuels Coalition	http://www.alabamacleanfuels.org/
Clean Cities Atlanta	http://www.cleancitiesatlanta.net/
Palmetto State Clean Cities	http://www.palmettocleanfuels.org/

For a list of all Clean Cities Coalitions throughout the U.S., visit:
http://www.afdc.energy.gov/cleancities/coalitions/coalition_contacts.php

For a list of upcoming Clean Cities Coalition events please see:
http://www1.eere.energy.gov/cleancities/events.html

By participating in Clean Cities Coalition events, fleet managers can gain insight into what other cities are doing to become EV Ready. Best practices can be identified, and local representatives can collaborate to determine ways to improve their EV Readiness. You are also encouraged to share your success stories with your Clean Cities Coalition. The coalitions regularly publish success stories, with some stories highlighted by the National Clean Cities program, giving your organization national recognition.

You are also encouraged to participate in your community's EV Readiness Committee or Task Force. Many communities are providing a forum for EV stakeholders to engage to promote activities to ensure they are EV Ready. If such a committee exists in your community, you will be a valuable participate based on fleet experience operating EVs.

Property & Facilities Manager Checklist

Property & Facilities managers can support their community's EV Readiness activities largely through deployment of EVs, installation of charging stations, and adoption of EV-friendly parking policies.

The following checklist illustrates actions fleet managers may undertake in an effort to become EV Ready. **It is important to note that not every action is appropriate for every community. Stakeholders may decide to "pick and choose" from the checklist. While every attempt was made to make the checklist exhaustive, there are likely other actions stakeholders can undertake to enable their community to become EV Ready.**

Complete	*Not Applicable*	Property & Facilities Manager Checklist
Infrastructure		
		Install publically available EV charging stations
Policies		
		Adopt a Green Fleet procurement policy
		Provide reduced rate/free parking and/or dedicated parking for EVs
		Support a champion from within your organization to participate on a committee to leverage the resources of community stakeholders to accomplish EV Readiness actions
		Create a sustainability reporting plan that includes petroleum reduction strategies
Outreach		
		Install signage around charging stations
		Be prepared to respond to inquiries about EVs from tenants/employees/customers
		Participate in Clean Cities Coalition and your community's EV Readiness Committee
		Contact your local Clean Cities Coordinator to list your publically accessible charging station on the U.S. Department of Energy Alternative Fuels Data Center Station Locator (http://www.afdc.energy.gov/locator/stations/)
		Advertise your charging station through smart phone applications, social networking, and the Clean Cities sites Plug-In Georgia, Plug-in Alabama, and Plug-in Carolina.

The following sections include discussions of each of the actions included in the checklist along with examples of actions or activities a Property Manager, Facilities Manager, or Employer might undertake to complete the action in an effort to become EV Ready.

Infrastructure

Deployment of adequate charging infrastructure is a key component of a successful EV Ready community. Property managers and employers who provide publicly accessible-charging stations help meet the need for both workplace charging as well as destination charging.

Install publically available EV Charging Stations

Property managers and employers can install charging stations for use by tenants/employees and/or the general public. Providing access to charging stations for your employees or your tenants' employees helps fulfill the need of the second most prevalent place EVs charge, which is the workplace. Property managers and employers can also provide opportunities for destination charging by providing access to charging stations for patrons and customers.

Installation of charging stations can also offer benefits to the property manager/employer. If you are seeking LEED designation, installation of charging stations may earn points for providing alternative fuel options. For property managers, installation of charging stations can help make property more attractive to potential tenants who value environmentally beneficial amenities.

Examples:

- ECOtality is managing The EV Project which is an effort to deploy charging infrastructure throughout selected cities in the United States. The EV Project has engaged more than 60 project partners, including Regency Centers, the property manager for Russell Ridge in Lawrenceville, GA.[6]

- There are a variety of other property managers and employers in the tri-state region supporting their communities' EV Readiness efforts through the installation of publicly-accessible charging stations. Case studies for each organization listed below are included in Section III.
    - Atlantic Station, Atlanta, GA (see Section 3.3.1)
    - Georgia Tech Hotel and Conference Center Parking Deck, Atlanta, GA (see Section 3.3.2)
    - Hilton Garden Inn, Atlanta, GA (see Section 3.3.3)
    - Kirk-Rudy, Woodstock, GA (see Section 3.3.4)
    - UPS, Atlanta, GA (see Section 3.3.5)
    - Clemson Area Transit, Clemson, SC (see Section 3.3.8)

[6] The EV Project, "Charging Maps." Accessed October 18, 2012. http://www.theevproject.com/charging-maps.php

Policy

Property managers and employers have the opportunity to become champions of EV technology. By adopting organizational policies to support EV-related activities, you can help your community's efforts to become EV Ready.

Adopt a Green Fleet Procurement Policy

There are significant environmental, fiscal, and community relation benefits of utilizing electric vehicles in fleets. As an employer, you may choose to adopt procurement policies which require at a minimum that consideration be given to the purchase of clean vehicles and may go so far as to require a certain percentage of vehicle purchases to be clean.

Examples:

- A number of nationally-recognizable companies are adopting clean vehicle technologies into their fleets, which includes EVs. Two Atlanta-based companies, UPS and Coca-Cola, are leading the way in their industries.

    - **UPS:** In 2011, UPS announced that "…its fleet of alternative fuels and technology delivery vehicles has driven 200 million miles since 2000." As of 2011, the company had "…explored eight different alternative fuel technologies…" including all-electric vehicles.[7]
    - **Coca-Cola**: In July 2011, Coca-Cola joined the National Clean Fleets Partnership. Member companies work with DOE to reduce petroleum and diesel use in their fleets. Coca-Cola is leading the way, operating more than 650 hybrid medium-duty trucks.[8]

Provide reduced rate/free parking and/or dedicated parking for EVs

In communities where parking is expensive or limited, or in cases where employers lack adequate parking for employees, property managers/employers may consider providing reduced rate/free parking or dedicated parking to EV drivers. This type of policy has the potential to influence future purchases of EVs as drivers are able to realize additional benefits from EV ownership.

[7] UPS Pressroom, "*Expanding UPS Green Fleet Travels 200 Million Miles*." Accessed October 18, 2012. http://pressroom.ups.com/Press+Releases/Archive/2011/Q1/Expanding+UPS+Green+Fleet+Travels+200+Million+Miles

[8] Coca-Cola Company Press Center, "Coca-Cola Joins National Clean Fleets Partnership." Accessed October 18, 2012. http://www.thecoca-colacompany.com/dynamic/press_center/2011/07/national-clean-fleets-partnership.html

Example:

- The City of Cincinnati implemented the All-Electric Vehicle Incentive Pilot Program that offers free parking in identified city-owned garages, a city parking lot, and at all parking meters within the city limits.[9]

Support a champion from within your organization to participate on a committee to leverage the resources of community stakeholders to accomplish EV Readiness actions

As a property manager or employer, you will have valuable experience related to your EV activities you can share with your peers. You are encouraged to identify yourself as an EV champion (or perhaps someone from your staff) and support participation in your community's EV Readiness Committee. If your community does not have a committee or another venue through which to promote EV Ready activities, you may consider championing the creation. Participation in a committee or task force allows citizens in the EV community to connect and act in the public interest to promote EV Readiness activities. You can also support sharing your organization's EVs experience through professional association memberships.

Create a sustainability reporting plan that includes petroleum reduction strategies

Many organizations are beginning to report on their sustainability efforts and the reductions they are achieving. Property managers and employers should ensure transportation-related metrics are included as part of your organization's sustainability plans. Successful transportation-related strategies, such as deployment of EVs in your fleet, contribute to reduced fuel consumption resulting in lower operating costs and lower vehicle-related emissions.

Outreach

Highlighting your successes and engaging with other stakeholders in your community who support EV Readiness activities are another way property managers and employers can support their community's efforts to become EV Ready.

[9] City of Cincinnati Office of Environmental Quality, "Free Parking for All-Electric Vehicles." Accessed October 18, 2012. http://www.cincinnati-oh.gov/oeq/residential-programs/electric-vehicle-free-parking/

Install signage around charging stations

Raising awareness of EV Readiness activities in the community is a valuable contribution. Property managers and employers who install charging stations should spotlight the infrastructure with effective signage. Effective signage can help promote EVSE technology and communicate essential information to potential EV owners. Sample EV signage can be found in the Signage Guide included in Section 3.2.10.

Examples:

- The Hilton Garden Inn Case Study includes a picture of the signage included in the EV-designated parking spaces equipped with charging stations (see Section 3.3.3).

Be prepared to respond to inquiries about EVs from tenants, employees, and customers

Property managers and employers supporting EV Readiness activities can be community champions for EV Readiness. You and appropriate members of your staff should be prepared to respond to inquiries about your activities. You can help to educate tenants, employees, customers who would like to learn more about EV-related technology and help those who are considering investing in the technology make more informed decisions.

Participate in Clean Cities Coalition and your community's EV Readiness Committee

Property managers and employers are also encouraged to engage with their local Clean Cities Coalition. The Clean Cities program is sponsored by the U.S. Department of Energy and supports public and private partnerships to advance the nation's economic, environmental, and energy security by supporting local actions to reduce petroleum consumption in transportation. There are nearly 100 coalitions throughout the United States, including three coalitions serving the tri-state region of Alabama, Georgia, and South Carolina. The coalitions are a valuable resource and are available to help you find answers to any questions you may have regarding your community's EV Readiness.

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Clean Cities Atlanta	http://www.cleancitiesatlanta.net/
Palmetto State Clean Cities	http://www.palmettocleanfuels.org/

For a list of all Clean Cities Coalitions throughout the U.S., visit:
http://www.afdc.energy.gov/cleancities/coalitions/coalition_contacts.php

For a list of upcoming Clean Cities Coalition events please see:
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You are also encouraged to participate in your community's EV Readiness Committee or Task Force. Many communities are providing a forum for EV stakeholders to engage to promote activities to ensure they are EV Ready. If such a committee exists in your community, you will be a valuable participate based on fleet experience operating EVs.