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Cities and Electric Vehicle Readiness Policy

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Executive Summary

As localities aim to decrease carbon emissions, reduce operational costs, improve public health, support economic development, and ensure energy security, electric vehicles (EVs) represent a solution. As an ever-emerging field, EV adoption is on the rise, but there is potential to accelerate its growth further. Local government leaders can encourage the rapid transition to electrification through EV readiness policies, which dictate various actions and steps that development projects must take to ensure the area is ready for EVs in the future. In the Electrification Coalition's (EC) experience, this entails requiring that a certain number of parking spaces in an area be ready for EV infrastructure. Developing an EV readiness policy can also allow cities to customize development ordinances to their needs. These policies are significant because they require installing electric vehicle supply equipment (EVSE) for current and future EV drivers, accelerating the electrification transition.

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1 Introduction to the Research

Recent years have seen unmatched investment in the rapid transition to electrification from the United States Federal Government, particularly with the passage of the Bipartisan Infrastructure Law (BIL) and the Inflation Reduction Act (IRA). While the focus turns to state and federal government actions, cities across the United States remain critical in this transition. The EC has supported local EV adoption over the past several years, primarily as technical support and resources are funneled to cities to implement transportation electrification programs and policies.

The American Cities Climate Challenge, a program created by Bloomberg Philanthropies, fostered and directed EV-related resources to twenty-five cities across the U.S. As a partner in the Challenge from 2018 to 2022, the EC provided deep technical assistance to cities to accelerate public fleet and consumer adoption through policy, procurement, and educational actions. The team worked with cities of varying sizes, allowing the EC to uncover and explore common challenges to the transition. While barriers like cost and public perception were present, the

EC’s biggest takeaway was that policy action presents a significant opportunity to facilitate a seamless transition to EVs.

EV readiness policies emerged as a high-impact strategy to encourage EV adoption and complement the need for thoughtfully placed charging infrastructure. This is echoed in various research projects and studies, such as the New York State Energy Research and Development Authority’s (NYSERDA) recent findings, which concluded that “because of the chicken-and-egg nature of planning EV and EVSE, and decentralized transportation infrastructure, jurisdictions must take the lead in clearing regulatory pathways to make room for the adoption of EVs and deployment of the necessary infrastructure to ensure the possibility of market uptake of EVs” [1]. As a result, EV readiness policies are a future-proof way to enact long-term sustainable change, as demonstrated through the EC’s case work with Orlando, Florida; Charlotte, North Carolina; and Columbus, Ohio.

2 What is EV Readiness?

Access to charging infrastructure remains a barrier to EV adoption across the U.S. Similarly, it is challenging to articulate the case for installing infrastructure while overall EV usage remains lower than that of internal combustion engine (ICE) vehicles. EV readiness policies have emerged to address this dichotomy while providing a long-term solution to charging infrastructure access.

EV readiness refers to an action that prepares for the future of EVs. Often, that includes action through building, zoning, and parking ordinance amendment. In the EC’s experience, much of what cities are doing to prepare for EVs is amending their building and zoning codes. By reconsidering municipal codes, especially those for new development, governments ensure properties can quickly and cost-effectively prepare for charging infrastructure and the EV transition.

When municipal code is amended to consider EVs and charging infrastructure, most policymakers modify specific percentages of required parking spaces to be “EV ready” or “EV capable.” This designation indicates that the parking spots have adequate electrical capacity, make-ready EV conduits, and the proper wiring to install charging infrastructure later. By preparing these parking spaces now, the developers and owners avoid the extensive costs associated with traditional trenching and boring methods for installing infrastructure. The following chart demonstrates what is meant by EV-ready, EV-capable, and EV-installed:

	EV Capable	EV Ready	EV Installed
Reserved capacity at the electrical panel	X		
Conduit/raceway installed (which in some cases includes pre-wiring or pull-through tab requirement)	X	X	
EV Charging Infrastructure Installed	X	X	X

Figure 1: Levels of EV Readiness Ordinance Requirement [2]

The percentage of designated parking spaces pursued under these policies varies widely, from as low as 2% to as high as 20%. Furthermore, some early adopters are returning to their amendments to increase their percentage requirements. Municipalities that seek these ordinances ensure optimal conditions for installing chargers to support conversion to EVs.

In addition to supporting the widespread conversion to EVs and reducing future costs, these policies support other areas. They make sure that housing (including multiunit dwellings) is fitted with charging capabilities,

allowing for a future where all residents can access charging. Similarly, when workplaces have charging, employees can more readily use EVs for work purposes, which can advance widespread fleet electrification.

3 How is EV Readiness Pursued

EV readiness is typically pursued as an ordinance or an amendment to building, zoning, or parking codes. Given the political nature of changing municipal code, the process can be lengthy and require significant stakeholder and community engagement. Entities looking to pursue EV readiness can expect to engage in a variety of the following best practices:

- Communicate with cities that have already developed best practices. Given the expansive nature of these policies, entities are likely to find a peer city that matches their size, regional market, or both.
- Understand the appetite for EV growth in the area. This could involve surveying the community about EVs and bringing in data from external sources about forecasted adoption.
- Host webinars or public meetings to inform the broader public about the proposed ordinance. This may include hosting several meetings in different locations and via diverse mediums to ensure an equitable approach to community engagement.
- Engage with stakeholders such as government representatives, EV advocates, nonprofit organizations, and the broader public. Entities will likely need to engage deeply with developers and affiliated trade associations, as this work most immediately affects them.
- Host a public hearing to garner feedback on the ordinance and allow for an open comment period during the ordinance's draft.

While these are the general steps for pursuing EV readiness, there are various options and policy pathways local governments can take to expand EV charging infrastructure. Furthermore, the EC's work across the U.S. Midwest and Southeast illuminates how these ordinances can be customized to a municipality's needs, yielding additional positive externalities and ways to shape this emerging field.

4 Case Studies

4.1 Charlotte, North Carolina

Charlotte, NC, was one of the first cities the EC partnered with to pass EV readiness policy. The city government wanted to improve access to charging infrastructure, enhance air quality, and achieve climate goals through EV adoption. This goal was also part of a broader project to amend and update the city's building code. Amending building codes is rare but crucial to foster growth and status as a large urban area. The amendments created a unique window for the EC to work with city partners to incorporate EV readiness considerations.

Before working on the EV readiness ordinance with the City of Charlotte, the EC worked with the staff on a related EV-first procurement policy for fleet purchasing. This policy offers a proactive procurement approach, prescribing EVs as the first consideration for fleet purchasing (compared to gasoline or diesel options) on a total cost of ownership basis. The policy ensures EVs can be easily incorporated into the city government's operations over the coming years. When pursuing EV readiness, the EC used insight on dynamics gleaned through the EV-first procurement policy. These insights were then applied to the related task of incorporating charging infrastructure standards into new build construction. Learning this from interaction with City leadership fostered cohesion and was paramount to effectively crafting EV readiness ordinance language.

Enabling residents to reduce reliance on private vehicles encourages investment in more sustainable transportation options [3]. As noted in the following two case studies, stakeholder engagement was vital to gathering support for the ordinance. Ultimately, the policy passed under the Unified Development Ordinance, signaling the City's commitment to electrification as it relates to development. The policy applies to multi-family stacked dwellings, residential components of mixed-use developments, hotels, and parking lots/parking structures:

- If the entity has 0-9 parking spaces, there are no EV capable, nor EVSE installed requirements.
- If the entity has 10-25 parking spaces, 20% must be EV capable, while no spaces need EVSE installed.
- If the entity has 25-50 parking spaces, 20% must be EV capable, and one space must have EVSE installed.
- If the entity has 50 parking spaces, 20% must be EV capable, and 2% of spaces must have EVSE installed [4].

The Unified Development Ordinance is a notably large piece of legislation. While EV readiness can pass as a stand-alone policy, the City ultimately benefitted from the chance to pass the legislation as part of a broader policy. EV readiness was a relatively seamless addition to the policies introduced in the ordinance.

4.2 Orlando, Florida

The EC worked with the City of Orlando, Florida, on a comparable EV readiness ordinance approach, allowing for the expansion of charging in new build constructions and addressing charging for hotels and tourism. With the city’s rapid development, increasing population, and high numbers of tourists, the government knew that EVs and accompanying infrastructure were crucial to its continued success and alignment with climate action goals. The City wanted to ensure it was prepared for the future growth of EV drivers in the region while meeting current charging needs. Staff noted that pursuing the policy for the rapid deployment of EVs provides the following benefits:

- Reducing carbon emissions
- Improving public health
- Creating economic development opportunities
- Developing a workforce of the future
- Offering potential for greater emergency preparedness

The EC was heavily involved in crafting Orlando’s EV readiness ordinance, which passed in August 2021. The law future-proofs new developments by ensuring they “will be equipped to support EV use by providing charging infrastructure that removes prohibitive cost barriers to future parking lot retrofits and ensures our transition to an all-electric future [5].” More specifically, the policy requires 2% of parking spaces to be equipped with EV charging stations and 10-20% of parking spaces to be built “EV Capable” as of January 1, 2022, with permitting requirements in place later in 2022. EV capable means that there must be dedicated capacity in the electrical panel and conduit running to install charging stations there in the future.

To pursue this policy, the EC worked with the City to host in-depth stakeholder engagement sessions, incorporating attendees from various entities. In addition to following traditional stakeholder engagement procedures, Orlando knew engaging developers across the city was essential. The area has significant condominium and apartment-style dwellings, where EV readiness can be particularly useful. Stakeholder engagement with these organizations was focused on EV readiness education and why it is necessary, as well as dialogue on why focusing on new development projects is crucial to the ordinance’s success. During this process, the EC learned that the key to engagement was presenting information clearly and concisely while allowing ample time to address questions and concerns.

The City also created a streamlined permitting process for charging infrastructure, aligned with the passage of the EV readiness ordinance. This process can be particularly daunting when starting. So, the City created a simple, all-in-one web page to streamline the task [6], allowing easy process navigation, especially for those installing their first EV charging station. While not directly policy-related, this idea emerged during the stakeholder process, showing the additional benefits of pursuing such work. Ultimately, this development will further aid in the rapid deployment of EVs.

4.3 Columbus, Ohio

The EC was also heavily involved in developing the EV readiness ordinance in Columbus, OH. Before the policy development, the City had already conducted aligned stakeholder engagement and ordinance work to create a new building energy benchmark requirement, which offered an already-activated group of advocates working in the area who could contribute to developing an EV readiness policy. Given this firm basis, the EC and the City of Columbus were able to use a similar, proven approach while identifying other high-priority areas of focus for EV readiness. Equitable EV charging access, particularly for low-income eligible housing and underserved communities, was identified as an area of interest. Ordinance language focused not only on increased EV charging accessibility but also on increasing equity and access for all community members.

The City and EC began work by hosting a series of Equity EV Charging Roundtables, with an open invitation for presentation and dialogue with community members. Thanks to several equity-focused partners, City-hosted sessions brought thoughtful feedback, especially around the need to include multi-unit dwellings in the final ordinance. Additionally, one-on-one meetings created opportunities for engagement and education on EV readiness with community members. Developers, housing advocates, community-based organizations, environmental groups, and utilities attended these meetings, recognizing the importance of understanding ordinance detail and the input needed for finalizing. The Equity EV Charging Roundtables were partly convened by a partner organization specializing in bias study. While not a requirement for stakeholder engagement, it allowed for a more dynamic and nuanced process.

After over 85 internal, stakeholder, and one-on-one meetings, the policy passed in August 2022, instituting several measures to future-proof the city's electric vehicle charging infrastructure. The ordinance sets EV readiness requirements for single-family homes, multi-unit dwellings, workplaces, commercial sites, and City of Columbus parking. The City was also able to retain "EV ready" requirements (e.g., conduits installed at new builds) while ceding some of the previous "EV installed" requirements. This decision was crucial, as EV-ready conditions best prepare site locations for future charging needs and development. The code dictates the following:

- Single-, two-, and three-unit dwellings must have one EV-ready outlet per dwelling unit.
- Market rate multi-unit residential buildings must have 20% of their parking spaces EV capable, and 2% must have EVSE installed.
- Offices and workplaces with over 50 parking spaces must have installed 20% EV-capable spaces and 2% EVSE.
- Retail and commercial buildings with 99,999 square feet or less and 50 or more parking spaces must have 10% EV-capable and 1% EVSE-installed spaces.
- Retail and commercial buildings with 100,000 square feet or more and 50 or more parking spaces must have 15% EV-capable spaces, and 1% EVSE installed spaces.
- Affordable, multi-unit housing must have 15% EV-capable parking spaces and 2% EVSE installed spaces.
- All City of Columbus parking (including off-street, owned, and operated) must have 35% EV-capable parking spaces and 15% EVSE-installed spaces [7].

Starting in January 2028, the above percentages increase. As mentioned, a unique component of this ordinance is that it creates explicit consideration for affordable housing to expand charging in underserved communities. In-depth community and stakeholder engagement were the key drivers in the ordinance language. The EC has found this to be an essential but overlooked element that has not yet been widely adopted in other cities' EV readiness ordinances. Extensive community engagement is critical in developing and customizing a policy to its local context. Engagement is also crucial in an industry where steps to ensure equity can be complex.

5 Key Takeaways

Given this research, it is evident that EV readiness planning is happening at scale, providing immediate impact to the accessibility of EV charging while creating a pathway for growing charging infrastructure to meet future demand. The EC has watched this practice closely for the past six years as it has expanded vastly. The approach's popularity is not exclusive to any portion of the U.S. but has found application and efficacy across various communities and governments, big and small.

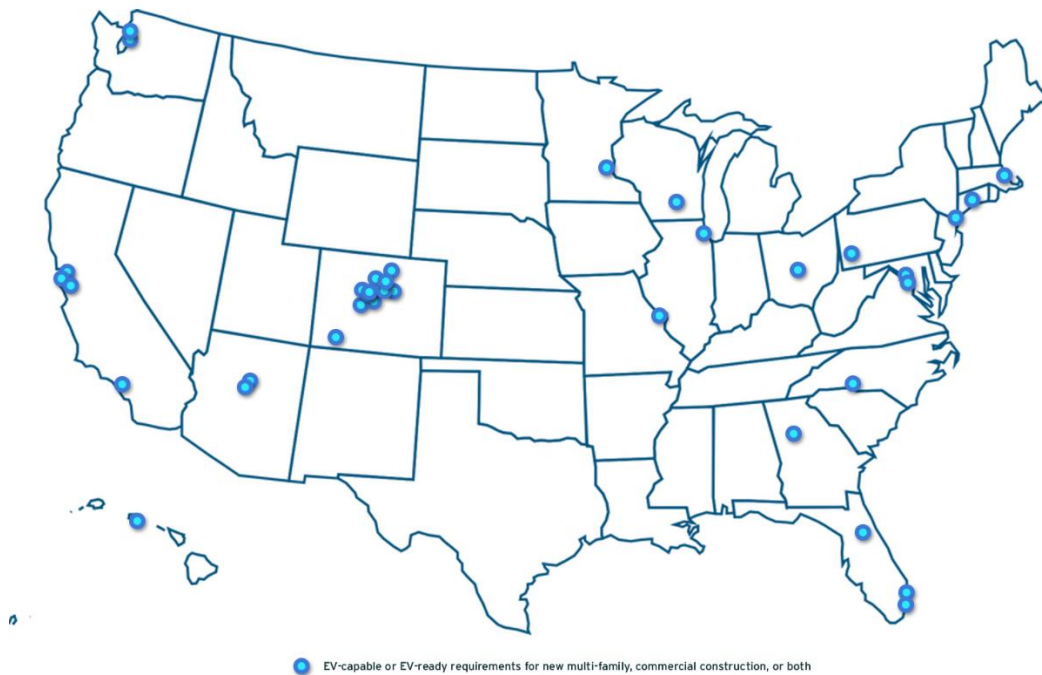


Figure 2: Map of areas nationwide with EV readiness policies [8].

As these policies become more popular, it is essential to consider their expansion to additional localities. While many steps are involved in passing an EV readiness policy, the EC has found passing these policies to be both approachable and beneficial for cities of all sizes. Stakeholder engagement is central to successful work, as evidenced by the policies mentioned in this paper. The EC recommends considering the following to set up a successful adoption process:

- Engage with key stakeholders early, mainly if they are potential policy advocates or champions. These stakeholders can help with reaching the broader public with education.
- Ensure key government staff is knowledgeable on EVs, EV policy, and the impacts of EV readiness. Understandably, staffers often work far more broadly than on EVs, so ensuring they are subject matter experts during the project process is critical.
- Examine upcoming legislation timelines. As shown in Charlotte's case, these policies are often relatively small, so it is possible to include them under other policies.
- Ensure developer engagement. The policy may affect this stakeholder group the most, so educating the developers and ensuring their support is essential.
- Pay attention to ways the ordinance can work towards equitable outcomes. Engage with local experts to understand how to incorporate these issues. As mentioned, this is not yet widely considered, but it needs to be to ensure that the broader EV industry is inclusive and accessible.

Upon passage of the policy, cities can immediately reap the benefits. Given the ease with which EVSE can be installed following the enactment of the policy, charging stations can be installed quickly. Residents will notice more stations, and people will be more likely to use and purchase EVs. The potential is even more significant given the federal funding rolling out this year under IRA and the National Electric Vehicle Infrastructure Program (NEVI).

6 Conclusions

Pursuing policies like the ones explored in this research takes time, resources, and political capital. As mentioned, government entities undergo a stakeholder engagement and review process for this work, which poses the question of how impactful these policies are. When looking specifically at the parking ordinances the EC has supported, these policies significantly reduce overall infrastructure installation costs. Without an EV readiness policy like this, extensive charges are often incurred when installing infrastructure, causing many to opt out entirely or install too few to meet demand.

Through working with different localities, the EC has concluded that an EV readiness policy is a practical way to encourage the transition to EVs, facilitate and ensure the development of accompanying infrastructure, and save money in the long term. The policy can support each locality's goals, as demonstrated by permitting support in Orlando, procurement policies in Charlotte, and equity considerations in Columbus. Following the example set by trailblazing cities as they advance EV-friendly policies will be critical.

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Presenter Biography



Ben Prochazka is the executive director at the Electrification Coalition, a non-partisan, non-profit group of leaders committed to promoting actions to accelerate the adoption of plug-in electric vehicles throughout the United States. Ben has worked at the Electrification Coalition for nearly ten years, leading numerous innovative and impactful e-mobility programs and providing thought leadership in several spaces. Ben has spent more than a decade working on environmental, human rights, and voter engagement efforts throughout his career. His experience includes leadership roles as the campaign director for the Save Darfur Coalition, the legislative director for the Colorado Environmental Coalition, and the Colorado state director for the New Voters Project.