



4 Essential Ingredients of a Smart City EV Charging Strategy



Over the past few months, it has become increasingly difficult to keep up with news about the benefits and increasing interest in electric transportation.

On a policy level, the **bipartisan infrastructure law** in the U.S. includes \$7.5 billion in spending on electric vehicles (EV). Automobile manufacturers also see an electric future. Volvo, for instance, **announced** this year that it would sell only EVs by 2030. Volvo is not alone: General Motors **said** it would sell only EVs by 2035 while Ford will **offer** EVs only in Europe by 2030. Mercedes-Benz **vowed** to invest \$47 billion over the next decade to aggressively electrify its fleet of luxury vehicles.

Not surprisingly, these policy and business decisions are very much influenced by consumer demand. A survey by Consumer Reports at the end of 2020 **found** that over 70% of U.S. drivers would consider buying an EV and that an equal percentage said they understood the environmental benefits of EVs. The environmental and economic benefits of EVs are also coming into clearer focus. In fact, a series of recent **reports** from the University of California at Berkeley quantified that a shift to EVs would result in \$2.7 trillion in consumer savings, 150,000 avoided premature deaths due to improved air quality and a 45% reduction in economywide carbon emissions by 2030.

For cities, municipalities, and government agencies, transitioning to electric modes of transportation is a key component for achieving aggressive decarbonization goals; over 700 cities in more than 50 countries have **pledged** to cut carbon emissions in



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Source: Consumer Reports

half by 2030 and to eliminate them completely by 2050. While the potential environmental, economic and quality-of-life benefits of increased electric transportation are particularly obvious in cities, achieving them is not inevitable. Indeed, it's incumbent upon city leaders to develop smart and collaborative strategies and make wise investments to provide the charging infrastructure necessary to effectively accommodate a large increase in demand for charging services.

It may seem like a simple task: Just install enough Level 2 public chargers on city curbsides and await the rapid transition to EVs. But the reality is that smart planning that maximizes the benefits of EVs for city residents and businesses requires nuance and experience. A few of the challenges that need to be navigated include working with multiple stakeholders, fully leveraging policy incentives, achieving building code compliance, and accommodating consumer preferences about when and how drivers want to charge their EVs. Savvy EV-charging strategies

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CHRIS THORSON
Chief Marketing Officer, FLO

also acknowledge the need to evolve and change to meet the needs of a growing number of EV drivers.

For city leaders, it's important to consider equity when planning EV charging infrastructure. To achieve our climate goals and accelerate EV adoption, disadvantaged and low-income communities must have equal access to reliable charging stations. A positive EV driver experience for all will help ensure cities get a high return on their investment. Charging infrastructure creates an asset that generates revenue, particularly when it is reliable and placed in a location that gets a lot of foot traffic, such as a shopping district or hospital or in close proximity to urban multi-unit residential buildings.

But there's another way to think about the economics of charging infrastructure that is deployed in a smart and strategic fashion – say, near shops and restaurants that drivers can visit while their vehicle is charging. “The indirect economic benefits of EV charging can often be more valuable than the direct economic ones,” said Chris Thorson, Chief Marketing Officer at FLO, a North American leader in EV charging solutions, who has already deployed over 80,000 public, commercial and residential EV chargers. “Supporting EV drivers with public charging can push those drivers toward the local businesses where the charging stations are placed.”

FLO has deployed charging stations in municipal owned parking facilities and shopping malls across North America and collected data that shows the benefits to nearby retailers and mall owners. Typically, shoppers will park and stay at a mall for about 70 minutes – which is known as dwell time. In malls where FLO has installed chargers, the dwell time for EV owners more than doubles to 144 minutes when charging. This data tells us that there is an economic benefit from offering EV charging stations, besides the direct revenue generation.



There is no one-size-fits-all EV charging strategy



Cities are simply too diverse in their municipal priorities, existing electrical infrastructure, geographic spread, budgets and housing stock. For example, Los Angeles has a large concentration of EV drivers. It's also notoriously spread out geographically, and as a result, it has more single-family housing than more densely packed municipalities, such as New York or San Francisco.

To expand EV charging, Los Angeles took advantage of its transition to LED streetlights, which freed up excess electric capacity and provided convenient locations to install chargers. Instead of trenching and digging up concrete, LA realized it could implement EV charging services on existing street light poles as a way to quickly and cost-effectively deploy them across a wide geographic area. Streetlight charging might not be available in every city, but the important thing is for each city to understand what they are trying to accomplish and what is already in place.

While it's true that the unique attributes of each city will inevitably result in varying strategies for charging, municipal leaders should consider four basic building blocks as they develop plans and investments to electrify and decarbonize transportation.



Reduce range anxiety with curbside Level 2 charging

A **story** in The New York Times last year highlighted the challenges many cities eager to encourage EVs face. Instead of range anxiety – the fear that batteries could run out of juice before reaching a destination or charger – the biggest impediment to EV purchases among urban denizens was ready access to chargers. One New York City resident quoted in the story described the situation as “a charger desert” and said it kept him from purchasing an EV.

City leaders have the opportunity to solve this problem for citizens with smart deployments of curbside Level 2 chargers, which are particularly needed by the residents of multi-unit residential buildings. “Residents in condos and apartment buildings don't always have access to a driveway or garage, and

when they do, they might not have access to a home charger. And in older buildings, it can be very expensive to retrofit the electrical infrastructure to install on-site chargers,” says Nathan Yang, Chief Product Officer at FLO. “Providing Level 2 charging that residents of these buildings can easily access can reduce the barriers to EV adoption and make owning an EV more convenient. And if a city sees that a charger is highly used and there’s congestion, they can add another one 100 feet away.”

One recent example of how city leaders see curbside-charging accessibility as essential to achieving greenhouse gas emission reduction goals can be found in New York. This past June, the New York City Department of Transportation (DOT), Con Edison and FLO announced the first of 100 curbside Level 2 charger installations across 20 neighborhoods in all five boroughs of the city. “With sales of EVs at record levels, now is the time to develop a robust, convenient and publicly accessible charging network so that more New Yorkers can go electric,” said New York City DOT commissioner Hank Gutman.

Curbside charging is also important as part of a comprehensive plan that meets the needs of the increasing number of EV taxis and ride-sharing companies. Locating Level 2 charging stations near urban shopping destinations – or even at businesses themselves – can also encourage more economic activity.



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CORY BULLIS
Public Affairs Director US, FLO



Comprehensive plan to make buildings EV-ready

Retrofitting buildings to have the adequate wiring and electrical panels needed to charge EVs can be expensive. According to **Energy Solutions**, the price tag for a retrofit is \$3,710 per parking spot when a large number are being installed, compared with \$920 if the infrastructure is included as part of new construction. Other estimates put the cost much higher, including \$7,000 per parking spot in Canada.

Which is not to say that retrofitting a multi-unit residential building or business so that EV charging is available should be off the table. Instead, city leaders should consider offering incentives that encourage those investments while also requiring all new buildings be EV-ready. There’s already movement in this direction. Beginning in January 2020, the California Green Building Standards **Code** required that new single-family, townhouses, duplexes, hotels and non-residential buildings be “EV capable.”

“Cities should have the policy that all new buildings be EV-ready,” said FLO’s Senior Public Affairs Specialist Cory Bullis. “That way we don’t have to revisit these buildings in five years and potentially need to invest tens of thousands of dollars to retrofit the electrical system.”



Go the extra mile with public DC fast chargers

The occasional out-of-town trip or weekend getaway will see residents driving further and longer, thus requiring a specific form of EV charging infrastructure. Public DC fast chargers can also complement Level 2 charging stations in high-traffic locations, and provide an additional option for residents of apartment buildings and condos who do not have access to residential charging services.

In developing an EV-charging strategy, city leaders need to consider where to deploy charging stations to make it easy for drivers to come and go – or, alternatively, for tourists visiting a city to get a quick charge. DC fast chargers, which can provide an 80% charge in as little as 30 minutes, can be installed in strategic locations to make these journeys as easy and seamless as possible. Most electric vehicle charging is done at home, at work, or on the go using public Level 2 charging stations. But there is also a need for what we call transit charging, which is when you haven't reached your destination yet and need a quick charge to get there.

This holistic charging strategy is important because it enables higher EV penetration both in urban downtown areas, as well as the suburbs. When EV drivers are confident that there is readily available charging wherever they are – and wherever they want to drive – it removes the worries that may otherwise prevent an EV purchase. In other words, if a charging network is built, the drivers will follow.



Electrify parking lots (and the businesses around them)

A comprehensive citywide charging strategy must also include where to locate Level 2 chargers in both public and private parking lots. Increasingly, employers find that providing EV charging at work attracts and **retains employees** — a priority of increasing importance as more workers return to the office after the pandemic and as the battle for talent heats up. Cities and utilities can help encourage charging at the workplace through incentives and special rates. The results can be powerful: A U.S. Department of Energy **report** found that employees with access to charging at their workplace are six times more likely than the average driver to drive an EV.

Cities have more direct ways to accelerate EV adoption beyond supporting the efforts of local businesses. They can install Level 2 chargers in city-owned parking lots — ideally in locations that foster economic activity — and also electrify their own fleets of cars, trucks and buses.

As fleets of city-owned vehicles increasingly electrify, strategically placed public chargers will provide an additional charging option and keep the vehicles on the road for an extended period of time. They can also help speed the fleet electrification momentum that is already underway. Cities like Los Angeles, Seattle, and New York are aggressively electrifying their large vehicle fleets. Indeed, the latter recently **announced** \$420 million in new investment to convert all light-duty, medium-duty, and non-emergency heavy-duty vehicles to electric by 2035.





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NATHAN YANG
Chief Product Officer, FLO



The importance of a strategic partnership

How individual cities assemble a charging strategy with these four ingredients will obviously vary depending on their needs, budgets and citizen demands. But the need to develop a strategy that is suited to the unique dynamics of a city can help avoid needlessly wasting precious resources. “If you overinvest and say you want the most powerful charging station, that’s going to cost you a lot to install and maintain every month, which will make it difficult to justify its ROI unless it is in continuous use,” Yang said. “Right-sizing, a vehicle for efficiency, value creation, and future-proofing an EV deployment, must be top-of-mind. All cities have budget constraints, and determining the right-sized solution to cater to your specific needs is key so that those resources help as many people as possible have access to the best charging experience.”

In other words, the best EV charging strategy aims to right size rather than upsize charging infrastructure investments. To do this in the most cost-effective manner means selecting and locating chargers that fit the charging needs of the population being served. Right-sizing is a way to be efficient with always constrained budgets while still delivering value and future proofing charging deployments.

Which is why it’s so important for cities to work with a partner with experience and expertise to help devise, implement and operate an effective and future-proof charging strategy. FLO has worked with cities of all sizes across North America to accelerate progress toward the benefits of electric transportation.



A big reason cities such as Los Angeles and New York City have selected FLO is that we are a vertically integrated supplier, meaning the company does everything from the design and manufacturing of the charging stations through to operations and maintenance support. Our teams work in synergy to ensure maximum customer and driver satisfaction, monitoring the EV charging stations to identify and resolve any potential issues.

But it's not just about having a single point of contact. FLO's charging stations are highly reliable – the FLO network reporting an annual uptime of 98% or better – supported by a full suite of post-sale services that ensure cities achieve their objectives. These services include automated billing, remote firmware and software updates, maintenance and monitoring of station uptake, and resources to guide future investments.

FLO's analytics and insights dashboard helps clients plan and scale their EV charging deployments. It allows cities to monitor utilization and measure key metrics to help them understand their station uptake, optimize their current deployment, and develop indicators to scale their deployment as the need for charging services in the area grows.



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FLO is a leading North American electric vehicle (EV) charging network operator and a smart charging solutions provider. We fight climate change by accelerating EV adoption through a vertically integrated business model and delivering EV drivers the most dependable charging experience from curbside to countryside. Every month, we enable more than 1,000,000 charging events thanks to over 80,000 fast and level 2 EV charging stations deployed at public, private and residential locations. FLO operates across North America and our high-quality charging stations are assembled with care in Michigan and Quebec. Click below to learn more about what “EV charging done right™” means to us.

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