City of Tucson's Roadmap for vehicle electrification
By: The Office of Mayor Regina Romero

WORKING DRAFT

INTRODUCTION

Greater adoption of electric vehicles (EVs) can provide numerous benefits for The City of Tucson ("The City"), including better air quality, improved public health[1], reduced consumer fuel costs, increased efficiency of the electric grid with the potential to lower electricity rates for all customers, as well as the creation of local, hands-on jobs. Because EVs do not have tailpipe emissions, EVs have emerged as a key climate strategy to reduce greenhouse gas (GHG) emissions. The Transportation Sector is responsible for more than 28% of the United States' GHG emissions, of which 59% comes from light-duty vehicles alone[2].

Tucson is the third fastest warming city in the U.S. and is facing a real climate change crisis in public health and safety. On September 9, 2020, Mayor and Council adopted Resolution 23222 - Climate Emergency Declaration that commits the City of Tucson to reach carbon neutrality by 2030 and identifies electrification of both the public transit and City fleets as one pathway toward meeting that goal. Electric Vehicles (EVs) have emerged as a key climate strategy to reduce greenhouse gas (GHG) emissions from the transportation sector, the largest source of carbon pollution in the U.S. Regionally, transportation contributes about one-third of total annual GHG emissions (Regional Greenhouse Gas Inventory, 2012-2017, PAG).

When considering solutions, electric vehicles can assist in mitigating the worst impacts of climate change The City will face, while providing numerous consumer protections if implemented correctly. Accelerating the adoption of EVs in Tucson advances the goals from Resolution 23222 and realizing several economic, public health and environmental and socioeconomic benefits, including:

- **Reduced GHG and harmful tailpipe emissions** that cause and exacerbate respiratory diseases. Communities of color and other vulnerable populations often face increased health burdens from pollution. Increasing EVs in these communities can help address environmental injustice.
- **Achieved greater efficiency** compared to gasoline powered internal combustion engines, light-duty electric vehicles can travel the same distance using approximately 30% less energy.
- **Reduced fuel and maintenance costs,** EVs drivers pay the equivalent of $1.15 per gallon to recharge their vehicles. Fewer moving parts means lower annual maintenance costs and no oil changes.
- **Lower total cost of ownership**, EVs have a lower total cost of ownership than gasoline vehicles and the higher upfront cost is quickly offset by their lower fuel and maintenance cost.

[1] According to the American Lung Association's report, "The Road to Clean Air," The widespread transition to zero-emission transportation technologies could avoid more than $1.4 Billion in Health Impact Costs attributed to gas-powered vehicles' tailpipe emissions, https://www.lung.org/getmedia/99cc945c-47f2-4ba9-ba59-14c311ca332a/electric-vehicle-report.pdf

[2] "Fast Facts on Transportation Greenhouse Gas Emissions," https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions

Additionally, the upfront cost of EVs is expected to reach parity with conventional vehicles by the mid-2020s as battery prices decrease.

- **Increased locally produce energy source**, Arizona does not have oil refineries and all its motor gasoline is imported by pipeline from California and Texas. As Arizona transitions its transportation fuel source from gasoline to electricity, those energy dollars stay in the regional economy.
- **Stimulate the local economy**, EVs can create jobs in engineering, construction, and electrical work.

There has been an increasing movement towards vehicle electrification across the country and across the state. One of the biggest drivers of EVs innovation and adaptation are public policies that aim to mitigate greenhouse gases, spur economic development, and address Arizona's prevailing issues with ground-level ozone pollution non-attainment[3]. Per the Arizona Corporation Commission (ACC), in Decision No. 77289[4], Arizona Public Service (APS) and Tucson Electric Power (TEP) developed a statewide Transportation Electrification Plan, through which they committed to help bring over one million electric vehicles to the state by 2030. Locally, TEP has committed to generate 70% of its energy with renewable resources by 2035 (Integrated Resource Plan, TEP).

Over the years, the City of Tucson has made significant progress in moving away from gasoline and diesel fuel vehicles. The largest gains have been made in transitioning diesel vehicles out of the fleet. Sun Tran has 90 CNG busses, and in June will have 5 electric busses as part of their fleet. More than 85% of the refuse fleet now operates as CNG which dramatically lowers their GHG emissions. There is a total of 44 hybrid fleet vehicles in addition to the 2 electric fleet vehicles in the City's inventory.

However, an integrated and holistic approach is needed to fully transition to zero emission vehicles and advance the adoption of EVs in the community as well as The City's operations. Ensuring The City is "EV-Ready" is a community effort that requires supportive planning, partnerships, policies, infrastructure development, and education and outreach.

This **Electric Vehicle Readiness Roadmap** is a tool for the City of Tucson to investigate the actions that it can take to support EV adoption in the community. Cross departmental collaboration and partnerships with community members and other stakeholders will be vital to the success of this Roadmap. The Roadmap includes a vision, goals, and clearly defined roles for City departments, public and private partners, and the Tucson community.

VISION

The City of Tucson is a leader in clean, convenient, and affordable transportation that is accessible to historically underserved communities and it is powered by locally sourced clean and renewable energy. Tucson is a city where residents, businesses, and visitors will choose electric vehicles over conventional fuel vehicles.

[3] Air Quality | Nonattainment Areas | ADEQ Arizona Department of Environmental Quality (azdeq.gov)
[4] 0000199128.pdf (azcc.gov)

Guiding principles: To achieve this vision, and in alignment with Arizona Thrives Alliance, the City of Tucson is committed to solutions that:

- **Promote clean air.** Clean air that protects public health, our natural environment and sustainable economic growth.
- **Accelerate clean energy.** Energy that is affordable, reliable and carbon neutral.
- **Prove effective.** Solutions that are integrated, durable, credible, and actionable.
- **Benefit economy wide.** Innovation in how we move, where we live and work, and how we power our economy while limiting adverse impacts in our communities.
- **Ensure a healthier future**. A process that values equity, access, and healthier communities and environment.

GOALS

City Government

- Transition 100% of the City light-duty vehicle fleet to electric by 2030.
- Increase the stock of zero emissions battery powered transit and school buses to 90% by 2030.
- Invest in the charging infrastructure needed to support EVs in the City fleet and provide adequate workplace charging for municipal employees.
- Increase awareness and use of personal EVs among City employees.

Community-wide

- Increase the use of EVs over gasoline and diesel fuel vehicles in the region.
- Improve awareness of EV purchase, operation, and the life-time costs and benefits among residents, businesses, and visitors to Tucson.
- Make EVs and charging infrastructure accessible to a broad range of users, including historically underserved communities equitable by making it easier to purchase, charge, operate, and ride an EV.
- Integrate EVs with a renewably powered electric grid to minimize heat trapping gases and air pollutants, maximize energy system resilience, and reduce costs to City of Tucson residents, businesses, and government.
- Create well-paying jobs with few educational barriers such as electric vehicle charging developers and installers due to the growth of the electric vehicle industry in Tucson.

STRATEGIES

To advance and achieve these goals, the City of Tucson needs to institute a series of strategies that address Arizona's barriers and opportunities for EVs adoption.

The EV-Readiness strategies include actions, lead department, partners, timeline, budget, level of effort and potential impact.

- **Actions:** A series of actions to advance the strategy
- **Lead Department:** Lead department(s) responsible for initiating and owning the strategy.
- **Partners:** Key partners that will need to be consulted to move forward with related actions.

- **Timeline:** Suggested timelines for when a strategy should be implemented. While start and end dates are not always listed, timelines indicate when a strategy should actively be pursued.
- **Budget:** Funding, other than staff time, needed from the City to complete the strategy. Budget is noted using a low, medium, and high indicator, and budget level is relative among the strategies.
- **Level of Effort:** Staff time and work needed to complete the strategy. Level of effort is noted using a low, medium, and high indicator. As with budget, level of effort is relative among the strategies.
- **Potential Impact:** A gauge of the extent to which the completion or achievement of a strategy will affect the Roadmap goals. Potential impact is noted using a low, medium, and high indicator. Because there are many factors that determine success, the Roadmap does not identify impact in terms of emissions reduction or other quantifiable metrics.

1. Outreach and education

Outreach and education strategies are critical to enhancing the community awareness and understanding of EVs, including their costs, benefits, and other considerations. EV-Readiness education and outreach should be coordinated with the Pima Association of Governments' Travel Reduction Program to streamline messaging and reduce confusion about the City's commitment to both reducing VMT and electrifying VMT.

1.1 Target education and outreach to key audiences

Education and outreach should be targeted to specific audiences, including local businesses, low-income communities, multi-family housing tenants and landlords, building developers and employers.

Actions

- Partner with key stakeholders to conduct a charging demand analysis to identify specific geographic areas in Tucson that are likely to have higher demand for multi-family, workplace, and public charging and use the analysis for targeted outreach.
- Partner with key stakeholders to conduct targeted outreach to developers, multifamily housing building managers and governing boards; employers; businesses; and private fleets.
- Highlight the unique benefits of EVs adoption and EV infrastructure deployment for the targeted groups.

Lead Department	Department of Transportation and Mobility; Economic Incentives
Supporting Departments and/or Partners	Key stakeholders, including local businesses, developers, property managers, employers, non-profits, UArizona, Pima Associations of Governments (PAG)
Timeline	Ongoing with the charging demand analysis happening within 3 months
Budget	Low
Level of Effort	Low to medium
Potential Impact	Medium

1.2 Maintain a comprehensive EV website

The City of Tucson must provide residents, businesses, and visitors with specific, relevant, and information about EVs and charging options with a website. The website should include information about Tucson EV parking and charging stations, residential and public charging permitting, EV building codes, and local initiatives, incentives, and other considerations.

Actions

- Establish a central website that consolidates existing EV content and provides links to other local resources that provide relevant and current information.
- Coordinate with stakeholder agencies and organizations with existing EV-focused websites to share best practices and avoid duplication.

Lead Department	IT; Department of Transportation and Mobility
Supporting Departments and/or Partners	Geographical Information Systems Service Division; Communications Division
Timeline	Within 3 months with ongoing updates and maintenance
Budget	Low
Level of Effort	Low
Potential Impact	Medium

2. Leading by example

To inspire local businesses and community members to adopt EVs, the City of Tucson must lead by example incorporating EVs into the city's fleet, installing charging stations and supporting employees' choice to drive EVs.

2.1 Benchmark the City's vehicle fleet EV needs and opportunities

The City of Tucson must incorporate and take inventory of its existing vehicle fleet and pursue electrification opportunities.

Actions

- Conduct a full review of the entire City of Tucson fleet.
- Develop a fleet transition plan along with energy sourcing and EV infrastructure needs.
- Update procurement guidance to require justification for the purchase of all non-electric vehicles.

Lead Department	Environmental and General Service Department
Supporting Departments and/or Partners	Procurement Department
Timeline	Within 6 months
Budget	High when procuring vehicles
Level of Effort	Medium
Potential Impact	High

2.2 Pursue electrification opportunities within the City's light-duty fleet

The City of Tucson must incorporate EVs into its light-duty vehicle fleet to reduce municipal fleet emissions.

Actions

- Record, and annually update, whether there is a feasible electric option for every vehicle in the City inventory.
- Update procurement guidance to require justification for the purchase of non-electric vehicles.
- Establish guidance for employees about driving EVs, including how to maximize Plug-In-Hybrid Vehicle (PHEV) electric miles.
- Annually track city fleet and city employee Vehicle Miles Travel (VMT), including for electric vehicles, by department and seek opportunities to benchmark against other municipalities in the region.

Lead Department	Environmental and General Service Department
Supporting Departments and/or Partners	Procurement Department, Pima Associations of Governments (PAG)
Timeline	Within 6 months
Budget	High when procuring vehicles
Level of Effort	Medium
Potential Impact	High

2.3 Pursue electrification opportunities within the City's transit fleet

The Department of Transportation and Mobility (DTM) is piloting the first zero emissions bus that is fully powered with battery. Additionally, DTM has successfully secured nine additional zero emissions buses through the FTA Low-No Emissions Grant program. By 2022, the City will have a total of ten zero emission buses. The City must continue to pursue the electrification of the transit fleet and ensure the benefits of clean transportation reach historically underserved communities.

Actions

- Pursue funding opportunities for battery electric buses from the state and federal government and other sources.
- Update procurement guidance to require justification for the purchase of non-electric transit vehicles.
- Ensure battery electric buses are used on routes in underserved communities.
- Track data and compile lessons learned about electric bus routes, charging, and operations.

Lead Department	Department of Transportation and Mobility
Supporting Departments and/or Partners	Planning and Development Service Department
Timeline	Within 2 years with annual increments
Budget	High
Level of Effort	Medium
Potential Impact	High

2.4 Install EV charging stations for City fleet

To support the City's EV fleet adoption goals, Tucson must install adequate charging infrastructure to allow EVs to be as effective and convenient as conventional vehicles. Additionally, the City must ensure adequate transit charging infrastructure is installed to meet the needs of battery electric buses.

Actions

- Pursue EV charger funding from TEP, the state and federal government and other sources.
- Pursue funding opportunities for battery electric bus charging infrastructure, assessing the feasibility of both depot charging and options along the route.
- Assess utilization of existing light-duty charging infrastructure to determine optimal siting; consider relocating charging stations if they are underused.

Lead Department	Department of Transportation and Mobility; Environmental and General Service Department
Supporting Departments and/or Partners	Tucson Electric Power
Timeline	Within 2 years with annual increments
Budget	High
Level of Effort	High
Potential Impact	High

2.5 Encourage EV adoption by City employees

The City of Tucson must encourage City employees to drive EVs as personal vehicles by incentivizing the switch to EVs and making it easier to charge their vehicles while they work. According to the US Department of Energy, employees are six times more likely to drive an EV if their workplace offers EV charging.

Actions

- Survey City employees about current and future EV ownership and commuting habits.
- Install or expand workplace charging stations at municipal buildings to meet employee demand.
- Create or expand incentive programs to accelerate City employee EV adoption.
- Host "Ride & Drive" events with local electric vehicle providers to expose City employees to EVs.

Lead Department	Environmental and General Service Department; Human Resource Department
Supporting Departments and/or Partners	Local dealerships
Timeline	Within 1 year
Budget	High
Level of Effort	High
Potential Impact	High

3. Policies

The City of Tucson must amend and clarify City policies and procedures to facilitate increased access to EV charging citywide. The City must allow or expand charging infrastructure in right-of-way locations to maximize utilization. Additionally, the City must require the installation of charging infrastructure in new residential, commercial, and multifamily buildings. The installation of an EV charging station is up to six times less expensive when the infrastructure is installed during the initial construction phase as opposed to retrofitting existing buildings to accommodate the new electrical equipment.

3.1 Amend and clarify City policies to allow greater EV charging

The City of Tucson should document, streamline, and provide guidance for existing residential and commercial EV charging station procedures.

Actions

- Clearly summarize the basic steps residents, businesses, and developers must follow to install EV charging infrastructure.
- Establish a streamline EV charging permitting process notification mechanism.
- Establish wayfinding and signage guidance, coordinating with regional and state efforts.

Lead Department	Planning and Development Service Department
Supporting Departments and/or Partners	TEP; TRICO; Pima County
Timeline	Within 6 months
Budget	Low
Level of Effort	Low
Potential Impact	Low

3.2 Allow right-of-way locations for EV charging installations

By allowing charging stations to be installed in right-of-way locations, the City of Tucson will increase the viable sites for charging, placing chargers in optimal areas.

Actions

- Convene a working group that includes local businesses and developers to evaluate concerns and identify solutions for right-of-way charging.
- Amend the Street code to allow right-of-way charging.
- Pilot an on-street charging station project
- Create equitable access to charging infrastructure in the public right-of-way and key locations such as City Parks

Lead Department	Planning and Development Service Department
Supporting Departments and/or Partners	TEP; TRICO; Pima County; local businesses and developers
Timeline	Within 2 years with annual increments
Budget	Medium with the pilot project
Level of Effort	Medium
Potential Impact	High

3.3 Revise residential, multi-family and commercial building codes to require EV-ready developments

EV-ready building codes are one of the most effective and low-cost strategies to encourage EV adoption through EV infrastructure requirements for new construction projects, including the electrical capacity and pre-wiring to make possible the future installation of EV charging stations[5].

The City of Tucson is seeing record numbers in building permit requests. New residential, multi-family and commercial buildings are constructed to last for 100 years or more, and so it is critical that charging infrastructure is incorporated at the pre-construction stage to ensure that new buildings can accommodate the charging needs of future EV-owners.

Actions

- Update building and land use codes to require that the infrastructure necessary for EV charging stations be installed as part of all new residential, multi-family and commercial developments.
- Provide incentives for charging infrastructure installation in new residential, commercial, and multi-family buildings.
- Phase out incentives and implement charging station mandates in new residential, commercial, and multi-family buildings through the building code.

Lead Department	Planning and Development Service Department
Supporting Departments and/or Partners	Local developers
Timeline	Within 2 years with EV-Readiness code changes happening within 4 months
Budget	Low
Level of Effort	Medium
Potential Impact	High

3.4 Establish, expand and enforce EV parking rules

The City of Tucson must enforce Arizona Revised Statues regarding regulations that ensure parking spaces designated as EV-only are properly used and that violations are enforced to deter non-EVs from parking in EV spaces.

Actions

- Update the traffic code to allow enforcement of EV-only parking spaces.
- Allocate fines associated with the enforcement of EV-only parking spaces to funding for EV charging stations or EV projects.
- Conduct outreach to educate the public about EV parking space policies.

Lead Department	Planning and Development Service Department
Supporting Departments and/or Partners	Park Tucson
Timeline	Within 6 months
Budget	Low
Level of Effort	Medium
Potential Impact	High

[5] Cracking the Code on EV-Ready Building Codes || SWEEP (swenergy.org)

4. City planning and regional coordination

To be a leader in EV adoption, the City of Tucson must collaborate with regional, state, and national officials and advocate for policies that advance clean and equitable transportation.

4.1 Encourage EV adoption in car sharing/ride-hailing and delivery companies

There is tremendous opportunity to advance citywide EV adoption when collaborating with car sharing and ride-hailing companies and delivery companies. Incentivizing the adoption of EVs into car sharing and ride-hailing companies' fleet, such as Uber and Lyft, can provide EVs access to community members who do not own or cannot afford to purchase or lease an EV.

Additionally, delivery companies are poised for rapid electrification. For example, Amazon has invested in start-up Rivian and plans to deploy 100,000 of electric delivery vans by 2030, with a goal of 10,000 on the road by the end of 2021.

Actions

- Incorporate EV car sharing and ride-hailing services into the City's transportation long-range plan.
- Create incentives for car sharing and ride-hailing services and delivery companies to incorporate EVs into their fleet.
- Explore opportunities, in coordination with the Chamber of Commerce and individual small businesses that may not be represented by a trade entity, to incentivize EV car sharing programs that cater to small businesses.

Lead Department	Economic Initiatives; Department of Transportation and Mobility
Supporting Departments and/or Partners	Car/ride sharing service providers, delivery service providers; Chamber of Commerce
Timeline	Within 10 years
Budget	Low
Level of Effort	Low
Potential Impact	Medium

4.2 Incorporate EV-Readiness in local and regional planning

The City of Tucson should be explicit in its inclusion of EVs and actions to support EV adoption in City department and regional plans.

Actions

- Include EV-Readiness as a priority in the Climate Action Plan, Move Tucson, and Plan Tucson.
- Include EV-Readiness as a priority in the Energy Policy.
- Include EV-Readiness to all overlays, including the Broadway and Santa Cruz overlays.
- Amend the Infill Incentive District to include EV-Readiness language.
- Add EV-Readiness requirements to the Government Property Lease Tax (GPLET)
- Coordinate with the Regional Transportation Authority (RTA) to include EV strategies in the Regional Transportation Plan.

Lead Department	Department of Transportation and Mobility; Department of Planning and Development
Supporting Departments and/or Partners	All City departments, RTA
Timeline	Ongoing
Budget	Low
Level of Effort	Low
Potential Impact	Medium

4.3 Coordinate and advocate regionally

To advance EV adoption regionally, the City of Tucson should engage in state, regional and national advocacy efforts. The governors of Arizona, Idaho, Montana, Nevada, New Mexico, Utah, Colorado and Wyoming have signed an MOU to create an Intermountain West Electric Vehicle Corridor that will make it possible to seamlessly drive an electric vehicle across signatory states' major transportation corridors and foster public and private sector investment in EV charging stations and grow EV adoption in the region.

Actions

- Incorporate EVs and charging infrastructure in the City of Tucson's Legislative Policy Agenda
- Actively participate in the Arizona Transportation Electrification Collective.
- Coordinate with Regional Transportation Authority to ensure that Direct Current (DC) fast charging installations in Tucson align with Federal Highway Administration (FHWA) priority corridors.

Lead Department	Department of Transportation and Mobility
Supporting Departments and/or Partners	Intergovernmental Relations, RTA
Timeline	Ongoing
Budget	Low
Level of Effort	Low
Potential Impact	Medium

5. Incentives

Incentives are important ways to decrease barriers to entry and allow more businesses and community members to access and purchase EVs and install EV charging station. Incentives are especially important for low-income communities and small businesses.

The City of Tucson can educate others about available incentives, provide direct financial incentives, encourage local business and organizations to provide incentives, coordinate and provide access to external financial resources, and provide recognition to community leaders.

5.1 Incentivize community members to purchase EVs

The City of Tucson can work with local dealerships and financial institution organizations to help make EVs more affordable for a larger portion of the community.

Actions

- Coordinate group buys with local dealerships; clarify the City's purchasing rules to allow for this.
- Coordinate solar power group purchasing programs and link them to EV group purchasing.
- Work with local financial institutions and organizations serving these populations to offer attractive EV leases or interest rates to qualifying low-income residents.
- Partner with other municipalities in-state and out-of-state in group purchasing.
- Exempt EVs from City sales tax or allocate sales tax on EVs to fund EV charging projects.

Lead Department	Economic Initiatives; Department of Transportation and Mobility
Supporting Departments and/or Partners	Local EV dealerships; Department of Procurement; TEP's rebate programs
Timeline	Within 3 years
Budget	Medium
Level of Effort	High
Potential Impact	High

5.2 Support public charging station installation

The City of Tucson should encourage and provide funding to install public charging stations to enable EV driving within the City and EV travel from other communities. The City of Tucson should provide grants to private sector entities for the installation of public, workplace, and multi-family housing charging stations.

Actions

- Stay up to date on funding opportunities and notify local partners when funding is available for station installation.
- Support the installation of solar-powered charging stations when possible and where feasible.

Lead Department	Department of Transportation and Mobility
Supporting Departments and/or Partners	Economic Initiatives, private businesses, local developers, TEP
Timeline	Within 2 years
Budget	Medium
Level of Effort	High
Potential Impact	High

5.3 Recognize local businesses with workplace charging

Recognizing local employers that provide workplace charging to incentivize others to do the same and increase access to charging infrastructure for Tucsonans.

Actions

- Create or expand existing Recognition Programs to highlight and recognize employers that offer workplace charging.
- Create resources to help local businesses implement workplace charging programs.
- Facilitate a peer-to-peer information exchange between local employers about workplace charging.
- Conduct outreach to local businesses to raise awareness of the Recognition Programs.

Lead Department	Economic Initiatives
Supporting Departments and/or Partners	Local employers and businesses, PAG – Through regional transit programs
Timeline	Within 2 years
Budget	Low
Level of Effort	Low
Potential Impact	Medium

6. Utilities

The City of Tucson must continue to coordinate with local utilities, including Tucson Electric Power (TEP) and TRICO Electric Cooperative, to seamlessly incorporate additional EVs into the grid. Battery Storage can play a role in stabilizing the grid and reduce the need for infrastructure upgrades. On-site battery storage at DC fast charging stations could help smooth load profiles and reduce demand charges, storing electricity when demand is low and drawing electricity from the battery rather than the grid when demand is high.

TEP has committed to increase the share of renewable energy in its electric mix to 70% by 2035[6]. Additionally, TEP and the Arizona Public Service (APS) have committed to help bring over one million electric vehicles to the state by 2030. The City of Tucson can build upon these commitments to further encourage EV adaption citywide.

6.1 Support smart grid operations for EV

The City of Tucson must work to ensure that EVs will act as an asset to the grid and will be fully supported.

- Support utility pilot studies of EV impacts on the grid.
- Support research that looks at the implications of vehicle-to-grid technology.
- Explore opportunities to provide incentives for charging infrastructure capable of capturing usage data.

Lead Department	Environmental and General Service Department
Supporting Departments and/or Partners	TEP, University of Arizona
Timeline	Within 3 years with annual increments
Budget	Medium
Level of Effort	High
Potential Impact	Medium

[6] https://www.tep.com/tep-2020-integrated-resource-plan/

6.2 Increase renewable electricity for EV charging

To truly reap the benefits of a clean transportation system, EVs need to be powered by locally sourced renewable energy, including solar and battery storage. The City of Tucson should collaborate with TEP to ensure that renewable energy is a large component in EV charging stations.

Actions

- Work with local utilities and other EV charging providers to develop a charging demand analysis to identify areas that may have future EV demands and advocate for renewable electricity for EV charging, especially in historically underserved communities.
- Incentivize utilities to incorporate solar and battery storage in EV infrastructure plans.
- Work with local banks to bundle solar and residential EV charging stations with mortgages.

Lead Department	Economic Incentives; Environmental and General Service Department
Supporting Departments and/or Partners	TEP, local banks
Timeline	Within 5 years with annual increments
Budget	Medium
Level of Effort	High
Potential Impact	High

6.3 Upgrade electricity distribution infrastructure to ensure adequate capacity for future EV needs

The City of Tucson should work with utilities to ensure that existing distribution infrastructure is adequate for future EV needs and that they are upgraded, as necessary.

Actions

- Work with local utilities and other EV charging providers to develop a charging demand analysis to determine areas that may need future upgrades.

Lead Department	Department of Planning and Development Services; Environmental and General Service Department
Supporting Departments and/or Partners	TEP, other EV charging providers
Timeline	Within 1 year
Budget	Medium
Level of Effort	High
Potential Impact	Medium

6.4 Assess and adjust utility rate structures for EV riders

Working with TEP and other providers, the City of Tucson can incentivize EVs by providing EV drivers with favorable charging rates. Time-of-use rate incentivizes EV drivers to charge their vehicles during periods of low demand. It is important to manage the timing of EV charging and align charging with renewable energy (solar) availability and grid needs.

Actions

- Work with utilities to implement a time-of-use discount rate program for EVs.
- Collaborate with utilities to evaluate the need for and impact of demand charges for DC fast charging in Tucson; determine if formally exempting DC fast charging from future demand charges is feasible.

Lead Department	Environmental and General Service Department
Supporting Departments and/or Partners	TEP, other EV charging providers
Timeline	Within 3 years with annual increments
Budget	Medium
Level of Effort	High
Potential Impact	High

7. Emerging technologies

The transportation sector is rapidly changing and EVs and their charging technology is increasingly advancing. To meet future needs, the City of Tucson must follow EV trends and support innovative projects.

7.1 Track emerging technologies and market developments

The City of Tucson needs to track new and innovative technologies, including but not limited to extreme fast charging, inductive charging, and battery recycling.

Actions

- The Environmental and General Services Department, in partnership with Mayor and Council, will develop or hire an EV Specialist to work closely with Fleet Services and The City's Energy Office to provide support to Departments, the City Manager and Mayor and Council on EV technologies and fleet transition.
- Track changes in the EV market, including new model availability, federal tax credit availability, and any issues that may arise as EVs age.
- Keep constant communication with the University of Arizona (UArizona) and Arizona State University (ASU) about ongoing research projects and new EV technology.
- The EV Specialist will provide twice annual progress reports on emerging EV technologies and opportunities for City of Tucson adoption to the Commission on Climate, Energy and Sustainability and Mayor and Council.

Lead Department	Transportation and Mobility; Environmental and General Service Department
Supporting Departments and/or Partners	UArizona, ASU
Timeline	Ongoing
Budget	Medium
Level of Effort	Low
Potential Impact	Low

7.1 Pursue living laboratory projects

The City of Tucson should support innovative projects to test emerging technologies in real world applications, including smart grid projects, wireless/inductive charging on city streets, and EV battery recycling.

Actions

- Convene an innovation group twice a year to discuss potential living laboratory projects.
- Provide support for at least three living laboratory projects by 2030.
- Create an "Electric Avenue" to showcase EV charging stations.

Lead Department	Transportation and Mobility; Environmental and General Service Department
Supporting Departments and/or Partners	UArizona, ASU
Timeline	Within 10 years
Budget	High
Level of Effort	High
Potential Impact	High