

ELECTRIC VEHICLE READINESS ROADMAP

2022



Prepared by The Office Of Tucson Mayor



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Climate change is a threat to our public health, economy, environment, and our way of life. As the third fastest warming city in the U.S., the City of Tucson ("The City") is committed to becoming a climate resilient city, while centering frontline communities most impacted by climate change.

On September 9, 2020, Mayor and Council adopted <u>Resolution 23222 - Climate Emergency Declaration</u> that commits The City 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 <u>largest source of carbon pollution in the U.S</u>. The transportation sector is responsible for more than 28% of the <u>United States' GHG emissions</u>, of which 59% comes from light-duty vehicles alone. In Pima County, transportation contributes about one-third of total annual GHG emissions (<u>Regional Greenhouse Gas Inventory</u>, 2014-2019, PAG).

When considering solutions, electric vehicles will 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 several Plan Tucson and Resolution 23222 goals and realizes multiple economic, <u>public health</u> and <u>environmental and socioeconomic benefits</u>, 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. 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 will create jobs in engineering, construction, and electrical work.

There has been an increasing movement towards vehicle electrification across the nation. One of the biggest <u>drivers</u> of EV innovation and adaptation is public policy that aims to mitigate greenhouse gases, spur economic development, and address Arizona's prevailing issues with <u>ground-level ozone</u> pollution non-attainment.

Per the Arizona Corporation Commission (ACC), in <u>Decision No. 772894</u>, Arizona Public Service (APS) and Tucson Electric Power (TEP) developed a statewide <u>Transportation Electrification Plan</u>, 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 (<u>Integrated Resource Plan, TEP</u>).

Over the years, The City has made significant progress in moving away from gasoline and diesel fuel vehicles. The largest gains have been made in transitioning diesel vehicles in the transit and refute fleets. Sun Tran has 90 Compressed Natural Gas (CNG) buses, and 5 electric buses as part of their fleet, with 5 more electric buses on their way. More than 85% of the refuse fleet now operates as CNG which significantly lowers 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.





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.

GUIDING PRINCIPLES

To achieve this vision, and in alignment with <u>Arizona Thrives</u> <u>Alliance</u>, 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 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

- Support school districts increase the stock of zero emissions battery powered school buses.
- 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 and equitable to a broad range of users, including historically underserved communities, 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 that support local communities and the growth of the EV industry in Tucson.





To advance and achieve these goals, The City needs to institute a series of strategies that address <u>Arizona's</u> barriers and opportunities for EV 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 responsible for initiating and owning the strategy.
- Partners: Key partners who will need to be consulted to move forward with related actions.
- Timeline: Suggested timelines for when a strategy should be implemented. While start and stop times are not always listed, timelines indicate when a strategy should actively be pursued or is scheduled to 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. 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 community awareness and understanding of EVs, including their costs, benefits, and other considerations. EV-Readiness education and outreach should be coordinated with the <u>Pima Association of Governments' Travel Reduction Program</u> to streamline messaging and reduce confusion about The City's commitment to both reducing Vehicle Miles Travel (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.

- 1. 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.
- 2. Partner with key stakeholders to conduct targeted outreach to developers, multifamily housing building managers and governing boards; employers; businesses; and private fleets.
- 3. Highlight the unique benefits of EV adoption and EV infrastructure deployment for the targeted groups.

| Lead Department | Environmental and General Services Department |
|--|---|
| Supporting Departments and/or Partners | Local businesses; developers; property managers; employers; non-profits; UArizona; Pima Association of Governments; Economic Initiatives; Planning and Development Services Department; City Manager's Office; Mayor's Office |
| Timeline | Ongoing with the charging demand analysis happening within 6 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 and relevant 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.

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

| Lead Department | Information Technology |
|--|---|
| Supporting Departments and/or Partners | City Manager's Office; Mayor's Office; 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 LEAD 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 Develop a Citywide Comprehensive Fleet Replacement Program with an emphasis on transitioning to fleet electrification

The City must incorporate and take inventory of its existing vehicle fleet and pursue electrification opportunities to reduce municipal fleet emissions.

- 1. Conduct a full review of the entire City of Tucson fleet.
- 2. Develop a fleet transition plan along with energy sourcing and EV infrastructure needs.
- 3. Develop and implement a comprehensive checklist and justification for the purchase of all non-electric vehicles.
- 4. Record, and annually update, whether there is a feasible electric option for every vehicle in the City inventory.
- 5. Establish directives and guidance for employees about driving EVs, including how to maximize Plug-In-Hybrid Vehicle (PHEV) electric miles.
- 6. Annually track city fleet 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 Services 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 transit fleet

The City's Department of Transportation and Mobility (DTM) launched the first five zero emissions buses and it has ordered five additional electric buses that are fully powered with battery. The City will have a total of ten zero emission buses thanks to the FTA Low-No Emissions Grant program. The City will continue to pursue the electrification of the transit fleet and ensure the benefits of clean transportation reach historically underserved communities.

- 1. Pursue funding opportunities for battery electric buses from the state and federal government and other sources.
- 2. Update procurement guidance to require justification for the purchase of non-electric transit vehicles.
- 3. Ensure battery electric buses are used on routes in underserved communities.
- 4. 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 Services Department; Environmental and General Services Department |
| Timeline | Within 2 years and ongoing as necessary |
| Budget | High |
| Level of Effort | Medium |
| Potential Impact | High |



2.3 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.

- 1. Pursue EV charger funding from TEP, the state and federal government, and other sources.
- 2. Pursue funding opportunities for battery electric bus charging infrastructure, assessing the feasibility of both depot charging and options along the route.
- 3. 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 |
|--|--|
| Supporting Departments and/or Partners | Environmental and General Services Department; Tucson Electric Power |
| Timeline | Within 2 years with annual increments |
| Budget | High |
| Level of Effort | High |
| Potential Impact | High |



2.4 Encourage EV adoption by City employees

The City of Tucson incentivizes City employees to drive EVs as personal vehicles by facilitating and making them aware of where charging opportunities are available. According to the US Department of Energy, employees are six times more likely to drive an EV if their workplace offers EV charging.

- 1. Survey City employees about current and future EV ownership and commuting habits.
- 2.Install or expand workplace charging stations at municipal buildings to meet employee demand.
- 3. Create or expand incentive programs to accelerate City employee EV adoption.
- 4. Host "Ride & Drive" events with local electric vehicle providers to expose City employees to EVs.
- 5. Establish guidance for employees about driving EVs, including how to maximize Plug-In-Hybrid Vehicle (PHEV) electric miles.
- 6. Explore incentivizes for EV adoption by offering free or reduced charging for City employees.

| Lead Department | Environmental and General Services Department |
|--|--|
| Supporting Departments and/or Partners | Park Tucson; City Manager's Office; Local dealerships; Human Resources; City Attorney's Office; Business Services Department and Human Resources |
| 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 <u>up to six times less expensive</u> when the infrastructure is installed during the initial construction phase as opposed to retrofitting existing buildings to accommodate the new electrical equipment.

3.1 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.

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

| Lead Department | Planning and Development Services Department |
|--|--|
| Supporting Departments and/or Partners | Tucson Electric Power; TRICO; Pima County; Department of Transportation and Mobility |
| 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.

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

| Lead Department | Department of Transportation and Mobility |
|--|---|
| Supporting Departments and/or Partners | Parks and Recreation Department; Tucson Electric Power; 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

<u>EV-ready building codes</u> 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 prewiring to make possible the future installation of EV charging stations. 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.

- 1. 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.
- 2. Provide incentives for charging infrastructure installation in new residential, commercial, and multi-family buildings.
- 3. Phase out incentives and implement charging station mandates in new residential, commercial, and multi-family buildings through the building code.
- 4. Streamline the permit process for retrofits to add EV charging.

| Lead Department | Planning and Development Services Department |
|--|---|
| Supporting Departments and/or Partners | Local developers and community stakeholders |
| 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 public parking spaces designated as EV-only are properly used and that violations are enforced to deter non-EVs from parking in EV spaces.

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

| Lead Department | Department of Transportation and Mobility |
|--|---|
| Supporting Departments and/or Partners | Park Tucson |
| Timeline | Within 6 months |
| Budget | Low |
| Level of Effort | Medium |
| Potential Impact | High |

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.

- Incorporate EV car sharing and ride-hailing services into the City's transportation long-range plan.
- 2. Create incentives for car sharing and ride-hailing services and delivery companies to incorporate EVs into their fleet.
- 3. 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 | Department of Transportation and Mobility |
|--|--|
| Supporting Departments and/or Partners | Car/ride-sharing service providers, delivery service providers; Chamber of Commerce, Economic Initiatives; Pima Association of Governments |
| 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.

- 1.Include EV-Readiness as a priority in the Climate Action Plan, Move Tucson, and Plan Tucson and include as a priority for future energy policy updates.
- 2.Include EV-Readiness to all overlays, including the Broadway and Santa Cruz overlays.
- 3. Amend the Infill Incentive District to include EV-Readiness language.
- 4.Add EV-Readiness requirements to the Government Property Lease Tax (GPLET)
- 5. Coordinate with the Regional Transportation Authority (RTA) to include EV strategies in the Regional Transportation Plan.

| Lead Department | Department of Transportation and Mobility |
|--|---|
| Supporting Departments and/or Partners | Planning and Development Services Department; 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 <u>Intermountain West Electric Vehicle Corridor</u> 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 to grow EV adoption in the region.

- 1.Incorporate EVs and charging infrastructure in the City of Tucson's Legislative Policy Agenda
- 2. Actively participate in the Arizona Transportation Electrification Collective.
- 3. 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 stations. Incentives are especially important for low-income communities and small businesses. The City of Tucson can share information on the 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 Work to reduce barriers for low-income communities to own EVs

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

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

| Lead Department | Business Services Department |
|--|--|
| Supporting Departments and/or Partners | Local EV dealerships; Department of Procurement; Tucson Electric Power's rebate programs |
| Timeline | Within 3 years |
| Budget | Medium |
| Level of Effort | High |
| Potential Impact | High |



5.2 Support public charging station installations

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.

- 1. Stay up to date on funding opportunities and notify local partners when funding is available for station installation.
- 2. 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, Environmental and General Services Department; private businesses, local developers, Tucson Electric Power; Intergovernmental Relations |
| Timeline | Within 2 years |
| Budget | Medium |
| Level of Effort | High |
| Potential Impact | High |



5.3 Recognize local businesses with workplace EV charging

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

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

| Lead Department | Business Service Department |
|--|--|
| Supporting Departments and/or Partners | Economic Initiatives; City Manager's Office; Mayor's Office; Local employers and businesses |
| 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 (DCFC) 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. 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 EVs

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

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

| Lead Department | Environmental and General Services Department |
|--|---|
| Supporting Departments and/or Partners | Tucson Electric Power, University of Arizona |
| Timeline | Within 3 years with annual increments |
| Budget | Medium |
| Level of Effort | High |
| Potential Impact | Medium |



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.

- 1. 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.
- 2.Incentivize utilities to incorporate solar and battery storage in EV infrastructure plans.
- 3. Work with local banks to bundle solar and residential EV charging stations with mortgages.

| Lead Department | Environmental and General Services 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 Work with utilities to 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

1. 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 |
|--|---|
| Supporting Departments and/or Partners | Environmental and General Services Department; TEP; other EV charging providers |
| Timeline | Within 1 year |
| Budget | Medium |
| Level of Effort | High |
| Potential Impact | Medium |



6.4 Work with utilities to 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.

- 1. Work with utilities to implement a time-of-use discount rate program for EVs.
- 2. Collaborate with utilities to evaluate the need for and the 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 Services Department |
|--|--|
| Supporting Departments and/or Partners | Tucson Electric Power, 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.

- 1. 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.
- 2. Track changes in the EV market, including new model availability, federal tax credit availability, and any issues that may arise as EVs age.
- 3. Keep constant communication with the University of Arizona (UArizona) Arizona State University, and Northern Arizona University about ongoing research projects and new EV technology.
- 4. The EV Specialist will provide biannual progress reports on emerging EV technologies and opportunities for City of Tucson adoption to Mayor and Council and the Commission on Climate, Energy and Sustainability.

| Lead Department | Environmental and General Services Department |
|--|--|
| Supporting Departments and/or Partners | UArizona, Arizona State University, and Northern Arizona University |
| 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.

- Convene an innovation group twice a year to discuss potential living laboratory projects.
- 2. Provide support for at least three living laboratory projects by 2030.
- 3. Create an "Electric Avenue" to showcase EV charging stations.
- 4. Share living laboratory projects and innovative achievements in economic development marketing campaigns and have Economic Initiatives staff attend EV industry sector trade shows to further attract industry in this sector

| Lead Department | Environmental and General Services Department |
|--|--|
| Supporting Departments and/or Partners | UArizona, Arizona State University, Northern Arizona University, Economic Initiatives, Visit Tucson |
| Timeline | Within 10 years |
| Budget | High |
| Level of Effort | High |
| Potential Impact | High |

TUCSON





Mayor

Regina Romero