Advancing Transportation Electrification In Diverse Communities: A Public Policy Toolkit for Policymakers

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EVHybridNoire is the nation’s largest network of diverse electric vehicle (EV) drivers and enthusiasts, and our mission is to advance electric vehicles and multimodal electric mobility (e-mobility) solutions (e.g., electric buses, electric bikes, electric scooters) across the United States, and ensure those solutions are inclusive and equitable. We do that by engaging with communities often left out of e-mobility discussions, advocating for e-mobility solutions in underserved communities, and shifting the narrative about e-mobility to be more inclusive of diverse populations.

Specifically, our work involves a mix of grassroots engagement; advocacy and decision-maker education; media outreach; speaking engagements; and research. That work spans many aspects of multimodal e-mobility and equity, including climate justice, workforce development, public health, multimodal mobility, and creative financing of e-mobility solutions.

The content and recommendations in this toolkit are based on EVHybridNoire’s extensive community and industry research. Our team has conducted dozens of focus groups and interviews in Black, LatinX, underserved and other diverse communities in states across the country to gauge people’s awareness of and interest in e-mobility in those communities. We regularly collaborate with leaders from across the e-mobility and equity landscape, and engage in policy thought leadership at the local, state, and federal levels. EVHybridNoire testifies before governmental committees, partners with utilities and government entities, works alongside community organizations, and assists in drafting e-mobility policy.

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We envision a world where all communities are free of air pollution from cars and trucks, and everyone can reap the benefits of electric vehicles and other e-mobility solutions.
EXECUTIVE SUMMARY

A cleaner, healthier, and more sustainable future via transportation electrification, or "e-mobility," is well within reach. All forms of mobility — bikes, scooters, vans, trucks, buses, cars, trains, and more — are being electrified at a rapid pace and are becoming available for widespread adoption, driven by action in both the private and public sectors. The private sector is investing billions of dollars — over $460 billion globally to date— into e-mobility. The first years of the 2020s have promised much in terms of expanding the American EV market: Ford announced the release of the electric version of its best selling full-size pickup truck, the F-150 Lightning; General Motors released the all-new subcompact crossover 2022 Chevrolet Bolt Electric Utility Vehicle and revised subcompact Bolt EV; GMC planned for Hummer EV full-size pickup truck production; and Volkswagen released its ID.4 electric compact crossover SUV. At the federal level, the Biden administration prioritized zero-emission vehicles with $174 billion in commitments that include building more than 500,000 EV charging stations, replacing 500,000 school buses with electric models, and electrifying the federal fleet. States and cities enacted measures to support the development of e-mobility, such as direct investments in charging stations, tax incentives, and encouraging micromobility solutions such as e-scooters, e-bicycles, and electric mopeds to provide alternative transportation options.
Undoubtedly, a zero-emission, climate-friendly transportation system can be realized. However, this system must ensure that e-mobility is equitable and accessible to all communities. Equitable transportation electrification ensures that all communities, regardless of race, ethnicity, location, and income level, have increasing opportunities to access and benefit from e-mobility solutions. The needs of underserved communities should be at the forefront of policy efforts to expand clean transportation. Stark inequities demonstrate the lasting impacts that historically inequitable mobility systems have had on the economic and social development of many communities, especially those from underserved and Black, Indigenous, and People of Color (BIPOC) groups. Nationally, 74% of areas that were classified by organizations determining home ownership loans and community makeup as “hazardous” almost 80 years ago are low-to-moderate income today and 64% are minority-majority communities. Restrictions to e-mobility access will not only exacerbate existing economic barriers but will also limit opportunities for improved public health and environmental outcomes in these communities.

Equity-centered strategies have great potential to advance e-mobility in underserved and BIPOC communities. Policy can play a critical role in realizing that vision; therein policymakers must invest directly in these communities to effectively reshape the transportation ecosystem to one that is more safe, affordable, accessible, and sustainable. Safety in this context refers to: vehicle safety; risks to people of color when they travel on U.S. roads; and relief from harmful pollutants that are dangerous to human and environmental health. Affordability refers to communities’ abilities to absorb the costs of transportation — including all forms of e-mobility — despite decades of rising economic inequality. Accessibility refers to the ease of communities to access and use e-mobility options, regardless of skin color, language, technological access, income, ability, and geographic location (e.g., urban or rural). Furthermore, truly accessible programs accurately respond to the present needs of community members without imposing solutions upon them. Finally, sustainability refers to how well the principles of environmental justice, energy security, reliability, and resilience are incorporated into e-mobility policies and programs. While building the recommendations found in this guide, we assessed potential policy options against these criteria.

This Public Policy Toolkit aims to provide an introduction to e-mobility, provide context for working on e-mobility with an equity-centered approach, highlight the historical and present inequities in transportation, and provide specific policy recommendations for equitably advancing e-mobility.

The primary policy themes we address in this toolkit include:

**Consumer Engagement**  
**Community Engagement**  
**Workforce Economic Development**  
**Public Health**  
**Clean Infrastructure Deployment**

The recommendations and discussions below are rooted in extensive research conducted in diverse communities across the United States. EVHybridNoire focuses on understanding attitudes, knowledge, and beliefs in Black, LatinX, Indigenous, and general market sectors. This research includes key informant interviews, focus groups, community listening sessions, and landscape assessments. The principles of diversity, equity and inclusion (DEI) drive our work in all of these contexts.
POLICY RECOMMENDATIONS:

Increase consumer awareness about e-mobility — particularly in diverse communities — and remove barriers for diverse consumers to benefit from e-mobility. Our policy recommendations:

- Provide funding to support the development of consumer engagement programs for all forms of e-mobility, including education for car dealers about EVs (Local)

- Develop comprehensive certification curriculum for new and pre-owned vehicle dealers to educate consumers on the benefits of EVs and provide information on ownership and charging installation. Include financial incentives for dealerships with trained EV professionals and incentives for salespersons per EV sold (State)

- Ensure that the development of e-mobility programs and initiatives are coupled with resource allocation for sufficient and culturally appropriate case management, consumer communication, and follow up throughout the duration of the program (State/Local)

- Eliminate extraneous fees and any tax liability for financial incentives, such as an EV registration fee, on the consumer. Such fees and liabilities act as barriers for consumers to purchase EVs and therefore benefit from e-mobility. If these fees do exist, households below a certain income level, households who live in heavily-polluted communities, and/or vehicles priced below a certain value should be exempt from any EV registration fees (State)

- Work with states to develop a nationwide public information campaign about e-mobility to dispel common
myths with potential consumers, including high costs, range limitations, and low reliability (Federal/State)

- Offer robust transferable and refundable rebates for new and pre-owned EVs that are available for consumers to use at the point of sale or purchase. Qualifying vehicles can have a maximum MSRP cap (which should be developed from income analyses of the policy’s region) not including other incentives. Ensure applicants can qualify for additional rebates if they reside in an environmental justice community as defined by the US EPA (State/Local/Federal)

- Allocate funding in the federal infrastructure bill for grants that transit agencies, nonprofits, and regional metropolitan planning organizations can apply for to educate transit users about the benefits of electric buses (Federal)

- Educate communities about rebates and tax credits—include additional information about how to determine whether consumers qualify for them and official program eligibility confirmation (Federal/State)

- Enable EV manufacturers and other e-mobility companies to sell directly to consumers (State/Local)

- Develop electric car-sharing programs (e.g., private, public, or community owned) which focus on underserved communities, particularly working families (Local)

- Provide incentives for micromobility companies (who adhere to stringent equity standards that include culturally appropriate and inclusive strategies) to invest in an extensive engagement campaign on the benefits and usage of electric scooters and bikes (State/Local)
Executive Summary

Ensure that underserved and BIPOC communities reap the economic benefits of the transition to e-mobility. Our policy recommendations:

- Advance and fund partnerships between government agencies and technical/trade schools/community colleges to develop a curriculum that would build diverse workforce pipelines for careers related to grid modernization, charging infrastructure deployment, and maintenance (Federal/State)

- Work with Historically Black Colleges, Tribal Institutions, and Universities (HBCUs)/Hispanic Serving Institutions (HSIs) and other underrepresented institutions to develop robust job pipelines into electrification training programs for students (Federal/State)

- Coordinate with federal, state, and local departments of transportation and environmental quality agencies to develop a robust e-mobility workforce development program that identifies, trains and retains people from underserved communities (Federal/State/Local)

- Build partnerships with the e-mobility companies and incentivize them to hire diverse individuals into jobs by providing education, skills training, and industry certifications (Federal/State/Local)

- Prioritize women, LGBTQ+, and BIPOC-owned businesses for the installation of workplace and public charging stations (Federal)

- Prioritize utilization of diverse suppliers and contractors from BIPOC and other diverse communities by increasing the percentage of contract awardees to these groups (Federal/State/Local)

- Establish project-specific agreements between developers and community coalitions to ensure community support for specific projects (Local)
Executive Summary

Ensure diverse communities as a whole have the necessary information, resources, and infrastructure to actively participate in e-mobility. Our policy recommendations:

- Increase funding and prioritization of education & outreach around e-mobility in BIPOC, underserved and underrepresented communities in urban and rural areas (Federal/State).

- Ensure that transit agencies, transportation departments, environmental planning and sustainability teams, and other public agencies partner directly with community-based organizations and other leaders from diverse communities, so that these communities are seeing themselves in e-mobility public outreach efforts (Local).

- Collaborate with school districts, utilities, and local lawmakers to fund and accelerate the adoption of fully electric school buses, prioritizing the most polluted communities (Federal/State/Local).

- Ensure that all e-mobility programs incorporate feedback and decision-making from impacted communities during a program’s development, implementation, and evaluation (Federal/State/Local).

- Establish partnerships with nonprofits, utilities, and others to improve awareness of e-mobility incentives, reduce administrative burdens, and connect with a larger audience (Federal/State/Local).

- Establish data collection standards that protect people’s privacy, health records, and maintains equity as a priority (Federal).

- Incorporate e-mobility education and initiatives into existing community outreach programs focused on environmental justice, community development, social services, affordable housing, workforce development, and more (Local).
Executive Summary

Ensure that the public health impacts of our transportation system are being incorporated into e-mobility policies and programs. Our policy recommendations:

- Prioritize deployment of e-mobility solutions and infrastructure in communities with unhealthy air quality (Federal/State)

- Fund community air quality monitors for areas with no state or federal monitors, and allow community-level data to be incorporated into allocation decisions and environmental justice frameworks. Pair funding for community air monitors with community emissions reduction plans (Federal/State)

- Fund and conduct research on the health benefits of transportation electrification scenarios, with a specific interest in BIPOC, underserved, and tribal communities in urban and rural areas (Federal/State)

- Fund and conduct additional research into the predicted shifts of air pollution impacts from urban communities to rural communities living near power plants (Federal/State)

- Develop and incorporate better mapping tools to systematically identify overburdened and underserved communities of color (Federal/State)

- Establish equitable low-emission zones in high-traffic areas and in environmental justice communities. Create timelines and processes to transition these zones to zero-emission zones with the adoption of zero-emission vehicles and public transit (State/Local)

- Improve and expand existing official air quality monitor networks particularly in BIPOC, underserved, rural and tribal communities and update requirements for accurate reporting of air quality data (Federal)

- Dedicate funding to provide community organizations with a network of low-cost, easy-to-use, portable air pollution sensors and allow community air quality data to be incorporated in funding allocations and environmental justice community designations (Federal/State/Local)
Executive Summary

Expand the production of electric vehicles, and ensure that diverse communities have the infrastructure necessary to support those vehicles. Our policy recommendations:

- Fund e-mobility infrastructure that is targeted to diverse communities, using local, state, and federal competitive grant programs or formula programs to support streetlight, power pole, right-of-way charging and other equitable charging infrastructure solutions (Federal/State/Local)

- Increase e-mobility adoption by public transit agencies, corporations, and government entities by electrifying fleets and allocating more funds to support the purchase of electric buses and shared emerging technologies such as electric ride-hail services, micromobility, and autonomous vehicle fleets (Federal/State/Local)

- Encourage utilities to upgrade electricity infrastructure in underserved, tribal, and rural areas, by providing incentives and supportive policy (Federal/State)

- Provide incentives via increased funding and policy focused on encouraging utilities to upgrade electricity infrastructure in underserved areas. Consider “bundling” purchase incentives (such as grants or instant rebates) with charging incentives (grants for home chargers or prepaid charge cards) (State/Local)

- Conduct a national assessment on the status of, challenges to, and opportunities for greater EV charging infrastructure deployment in underserved, tribal, and rural communities (Federal)

- As mentioned in the 2020 EVs for Underserved Communities Act, deploy up to 200,000 EV charging stations in underserved communities by focusing on multi-family housing units and charging stations at major centers
of employment, and consider charging needs for different vehicles, such as medium and heavy-duty vehicles (Federal)

- Update building codes for both existing structures and new construction projects to require installation of electrical wiring and 240-volt supply for charging support in all 50 states, modeled after California’s 2015 mandate. Financial incentives should be provided for developers to install full chargers instead of just the wiring and supply box (Federal)

- Provide grants for neighborhood-level peer-to-peer charging infrastructure hosted by community members including but not limited to local small businesses, places of worship, community centers, and schools (State/Local)

- Ensure that tribal lands are eligible and have access to apply for and implement clean transportation infrastructure funding, programs, and development including capacity building and technical assistance (Federal/State)

- Strengthen fleet fuel economy standards to spur additional EV production from automotive companies, and provide additional financial incentives to auto manufacturers to push the development of zero-emission vehicles (Federal)

- Ensure that new and existing charging stations provide a range of accessible payment options to consumers without specific memberships and apps, allowing payment from digital wallets, prepaid cards, and credit cards (State)
How to use the toolkit
HOW TO USE THE TOOLKIT

The purpose of this toolkit is to provide policymakers with tools to (1) understand the current e-mobility landscape; (2) recognize how this inequitable landscape impacts BIPOC and underserved communities; and (3) advance specific policies to drive equity-focused approaches to accelerate e-mobility adoption.

This comprehensive approach is intended to recognize the role of race and ethnicity in our transportation system by first acknowledging our history of race-based decision-making, which has led to inequities in the way we live, work, and commute. In summary, we seek to answer the fundamental question of why promoting e-mobility in diverse communities is critical to achieving transportation, energy, and environmental equity.

While we discuss a handful of existing policies and initiatives, a number of the policy recommendations we put forth in this toolkit have not yet been implemented at scale. The landscape of e-mobility is incredibly dynamic and is primed for policy innovation. Policymakers can utilize these recommendations as they build programs that are tailored to the needs and circumstances of their communities.
Glossary

Language has long been used as a means to shape our perceptions about race and class. As we work to advance e-mobility in communities where the impacts of structural racism are most prevalent, we recognize that we must be purposeful with our language if we seek to break down these structures. Therefore, we have provided a glossary that not only defines terms central to understanding the e-mobility ecosystem but also terms central to addressing inequity.

BEV: Battery Electric Vehicle

BIPOC: Black, Indigenous, and People of Color

E-mobility: Transportation electrification, term is inclusive of all forms of mobility including bikes, scooters, vans, trucks, buses, cars, trains, and more

E-mobility Equity: Development of a transportation system that increases access to high-quality mobility options, reduces air pollution and enhances economic opportunity to all members of the community. People from underserved and BIPOC communities must be prioritized in these conversations.

Equity: Equity: Refers to fairness and justice and signifies a recognition that individuals and communities do not all start from the same point as a result of historical and current inequities. Equity acknowledges the need to make adjustments to reallocate resources in order to correct existing imbalances. Achieving equity is an ongoing process that requires us to identify and overcome intentional and unintentional barriers arising from bias and systemic structures.

EVs: Electric Vehicles, and usually referring to personal-use electric cars and light trucks

EVSE: Electric Vehicle Supply Equipment

Frontline Communities: Communities which are closest in proximity to environmental and health threats like power plants and chemical facilities, and/or which are hit first and worst by climate impacts such as rising sea levels and extreme weather.

HEV: Hybrid Electric Vehicle
**ICE:** Internal Combustion Engine

**Level 1 Charging:** Charging an EV using a common household outlet up to 120v. Level 1 is the slowest method of charging and can take up to 24 hours or more to fully charge an EV.

**Level 2 Charging:** Charges an EV at 240v using an installed outlet. Level 2 chargers are the most recommended chargers to EV owners. Depending on the EV model and charger, Level 2 can charge a vehicle 5 times as quickly as Level 1, which translates to up to 26 miles per hour of charging.

**Level 3 Charging:** Also known as DC fast charging or DCFC, the fastest method of charging for all EVs. It can fully charge an EV battery in 30 minutes. Level 3 chargers are currently rare, as they are expensive and require more power.

**Micromobility:** In the context of this report, electric transportation technologies such as e-scooters, e-bikes, and e-mopeds.

**Multimodal Mobility:** Mobility systems which include more than one way to get from Point A to Point B, including everything from public transportation (e.g., trains and buses) and ride-sharing solutions, to personal vehicles and micromobility options.

**Off-peak Charging:** Charging an electrical vehicle at the time of day when demand on the electricity grid is reduced and thus when some utility companies charge lower electricity rates.

**PEV:** Plug-in Electric Vehicle

**PHEV:** Plug-in Hybrid Electric Vehicle

**Range Anxiety:** Concern that an electric car will run out of battery power before the destination is reached.

**Underserved Communities:** Underserved communities are those who have been denied the full opportunity to participate in aspects of economic, social, and civic life. These communities face systemic and institutional barriers or disadvantages that prevent them from accessing the same resources and care as people not facing those barriers.
THE HISTORICAL IMPACTS OF TRANSPORTATION ON BIPOC AND UNDERSERVED COMMUNITIES

Transportation and urban planning in the United States trace their roots to the housing sector, which systematically marginalized people of color for decades. This intentional marginalization was perpetrated by actors in private, public, and non-profit sectors. Today, the infrastructure landscape lacks a modicum of safety, accessibility, and affordability for all Americans. For BIPOC communities, the deliberate marginalization resulted in the deprivation of essential resources. Generations of communities were left out and cut off from mainstream society and its resources. For instance, these communities were largely left out of bus route planning and other transportation planning decisions. This type of malfeasance by public officials, combined with generational trauma, had deadly consequences for these communities that are still being observed to this day.

As compared to the disparities in public transit service in BIPOC and underserved communities, the automotive industry offered a distinct path to economic stability because of its consistent need for labor. The automotive industry served as a pathway to the middle class for Blacks, and during the Great Migration, more than 6 million Blacks relocated from the rural Jim Crow South to industrial jobs in urban areas in the North. These jobs in automobile factories provided economic opportunities through relatively well-paying jobs that also provided benefits and a level of job security that many Blacks were experiencing for the first time in their lives.

The road to economic opportunity via the auto industry was a perilous one, given the grueling hardships of life in factories and being relegated to the union’s unskilled ranks. Blacks endured conditions that do not constitute fairness or decency. Even daily commutes to auto plants were made more difficult by inadequate transportation...
options, which included trolleys, trains, and buses. Those with cars faced risks to their safety from law enforcement under what is known as “Driving while Black.” A term originating in the 1990s but recently popularized with the release of a 2020 documentary, “Driving while Black” refers to the consistent over-policing and racial profiling of Black drivers. The consequences of this prejudice, however, stretch well beyond the experience of Black drivers on the highway to describe the many ways in which the right to move freely and safely in America has always been unequally distributed by race.²

Yet, Blacks held a considerable presence in the automotive industry up until the late 1970s — with 1 in 50 Blacks in the U.S. working in the automotive sector³. At just over 17% of employment, Blacks have been more representative than other groups of color in the vehicle and equipment manufacturing sectors. However, this was not the case for other communities of color. LatinX communities have accounted for just over 9%, while 6.4% of the jobs have been held by Asians⁴. While a truly inclusive workforce and humane conditions may not be a part of the auto industry’s past, it can be part of its future.

The transition to e-mobility will come with a robust demand for domestic labor. Electrification necessitates large-scale investments in charging infrastructure within urban and rural areas. Furthermore, production of components such as batteries, semiconductors, and electric motors will require a skilled domestic labor force. The need to secure key materials such as steel, aluminium, and glass will also require additional workers. This critical workforce demand provides an opportunity to rethink current approaches to labor and workforce hiring, much like auto companies did during the Great Migration. Strategies to equip this new labor force can incorporate equity-centered approaches to inclusivity and access for underserved and BIPOC communities to galvanize the next

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generation of auto manufacturing jobs.

EVs, the electrification of mass transit and other forms of public transportation (e.g., school buses, taxis, transportation network companies, autonomous vehicles), micromobility, and their accompanying infrastructure requirements can address equity issues concerning safety, affordability, accessibility, and sustainability through an environmental and economic lens. Policymakers have the ability to formulate policy that will have a substantial impact on people's lives. For BIPOC and other underserved communities, the health and security of their future rests on the successful permeation of equitable and research-based policymaking. To have a positive lasting impact, policymakers must be aware of the substantial barriers to adoption faced by BIPOC and underserved communities. These barriers are what remains of a legacy where unfairness and injustice were social, economic, and political norms.

The advent of e-mobility is likely the most important disruption to the transportation sector of our lifetime. Through this gradual reshaping of the way people move, policymakers will have the opportunity to repair the faulty foundation upon which our multimodal transportation sector currently sits.
Equity is at the core of this toolkit because the adoption of e-mobility is extremely important for BIPOC and underserved communities. An equity-centered approach in the growth of e-mobility solutions means engaging consumers and communities, building workforce pipelines, prioritizing public health and environmental justice, and building out related infrastructure across multiple modes. An equity-centered framework to spur e-mobility adoption is the only way to comprehensively address the harms promulgated by the current transportation ecosystem.

We use the term equity-centered to mean that equity must remain at the heart of this work to fully appreciate the scope of inequities from a grassroots perspective. Equity is often incorporated into policies as an afterthought, or siphoned into specific sections, rather than being integrated in the beginning. Putting equity at the center ensures that equity principles are applied to every level of the process.

Equity-centered work in mobility is often difficult. It takes sustained effort and awareness to dismantle decades of institutional and systemic racism, which has impacted several cross-cutting issues related to the quality of life for underserved and BIPOC communities (e.g., transportation, housing, public health). It is for this reason that a framework with equity at the center is integral to addressing e-mobility within the context of these complex issues.

Acknowledging the history of marginalization and the lack of resources and support provided to underserved and BIPOC communities is imperative. Additionally, fostering direct relationships with impacted communities to learn first-hand about the impact of the harm they have experienced, should inform our policy perspectives. Failing to do the above can lead to a fundamental misunderstanding that can thwart key objectives. A holistic understanding of community realities from the beginning of e-mobility adoption efforts must ensure that underserved communities are prioritized to receive the necessary outreach, education, incentives, and access to infrastructure.

This report employs both quantitative and qualitative analyses to build a more robust understanding of existing inequities and possible paths forward.
Defining E-mobility

Electric mobility, or “e-mobility,” refers to a wide array of electric-powered solutions for mobility technology, which are powered by batteries rather than gasoline. E-mobility includes electric vehicles like buses, trucks, and cars as well as micromobility solutions such as electric scooters, electric bicycles, and electric mopeds.
We define electric vehicles (EVs) as light-duty vehicles with electric powertrains. They include battery-powered electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). A hybrid EV (HEV) is a vehicle powered by a combination of an internal combustion engine (ICE) and an electric battery. This policy toolkit focuses on EVs that do not utilize ICE.

EVs have existed for more than a century, but are now positioned to drive a new transportation revolution. Car manufacturers have begun ramping up production of EVs in the last several years. Today, EV sales have steadily risen as more charging infrastructure is being built, battery prices continue to fall, and critical clean car policies push auto manufacturers to produce more EV options for car buyers. It is widely expected that the long-term outlook of EVs remains on an upward trajectory. Moreover, it is anticipated that approximately 400 new battery-powered EVs will hit the showroom floors between 2020 and 2025.

Legacy auto manufacturers such as General Motors and Volvo have committed to producing 100% electric fleets, while others like Volkswagen have committed at least half their sales in the U.S. being EVs in the next 10 years. The result of these commitments will be more consumer choices at increasingly affordable prices.

The long-term outlook for other forms of e-mobility is also positive. Today, there are over 500,000 electric buses, 400,000 electric cargo vans and trucks, and 184 million electric mopeds, scooters, and motorcycles on the road.

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5 A motor vehicle weighing 10,000 pounds (4,500 kg) or less.
globally, with positive trend lines that are expected to continue. In 2019, there were approximately 4.8 million EVs on the roads across the globe, which was up from 3.3 million in 2018. Furthermore, 2020 and 2021 proved to be important years for the expansion of EVs in the American market: Ford recently announced the release of the electric version of its best selling truck, the F-150 Lightning; General Motors released the all-new 2022 Chevrolet Bolt EUV and revised Bolt EV; GMC will begin the production of its Hummer EV in the fall of 2021; Toyota announced it will have over 15 EVs available for consumers to choose from by 2025; and Volkswagen now has its ID.4 EUV for sale. In short, electric mobility will become the most prevalent vehicle technology in a short matter of time.

However, even with e-mobility adoption on the rise, significant issues remain in maximizing access for underserved and BIPOC communities. The remainder of this report will address these specific concerns and offer insights for policymakers to utilize when developing e-mobility policy.

POLICIES AND DISCUSSION
Consumer Engagement and Barrier Reduction

EVs and other e-mobility solutions are still a new technology to the vast majority of consumers, especially in BIPOC and underserved communities. Consumer engagement and education are thus integral to adequately responding to the interests of the consumers themselves. Providing education materials that are culturally relevant and appropriate, including in non-english languages, is critical to ensuring the proliferation of sound information regarding transportation electrification. Consumers often receive information about new and used vehicles from car
Personal e-mobility options can be affordable for a wide range of consumers: e-bikes are widely available for around $2,000-$5,000, while electric scooters are available for $300-$1,000.

EVs are projected to reach price parity with internal combustion engine (ICE) vehicles by 2023\(^1\)\(^1\)\(^4\)\(^15\).

Owning an EV can save consumers $6,000-$10,000 over a vehicle’s lifetime, thanks to reduced operation and maintenance costs\(^16\).

Before the pandemic, unexpected car repairs were the most common financial shock on low-income families\(^17\).

Transportation costs are not equal across income: the average vehicle-owning U.S. household earning less than US$25,000 spends 50% of their income on vehicle ownership and operation, while median-income (US$50,000 to $75,000 per year) vehicle-owning households spend approximately 15% of their income on vehicle ownership and operation\(^18\).

Even when compared to other energy policies in the United States, existing and past EV incentives are particularly regressive in practice, with the vast majority of their total value going to high-income individuals\(^19\).

White, high-income individuals have greater access to public transportation and have less barriers to vehicle ownership than nonwhite individuals\(^20\).

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dealerships, online resources, local community organizations, and other consumers. Engaging them through all of these channels can help ensure that they are aware of e-mobility’s many benefits and that myths around e-mobility are addressed thoroughly. Effective consumer engagement should include public, private and non-profit sector stakeholders, and should help consumers understand the incentives, policies and programs available to help them learn about e-mobility solutions. Sound policy tends to be crafted after thorough research and community engagement. BIPOC and underserved communities often are left out of decision making processes as a result of willful neglect or ignorance. More targeted research is needed to inform how we address the gaps in inequitable policies.

**Mythbusting:**

**Affordability and Accessibility of EVs**

Affordability is key to any consumer engagement strategy, and the true cost of ownership is among the most pervasive misconceptions about EVs and other e-mobility solutions. Compared to gasoline-powered vehicles, EVs often have a lower true cost of ownership, due to lower maintenance costs and lower fuel costs over the life of the vehicles — and that is before considering the broader public health and climate-related financial benefits for society from reduced oil consumption.

Furthermore, while many EVs popularized by early adopters in recent years were high-end Teslas, those vehicles only represent a fraction of the roughly 56+ EV models available today in the U.S.²¹. Newer EV options include an electric version of Ford’s best selling truck, the F-150 Lightning, General Motors’ 2022 Chevrolet Bolt EUV and revised Bolt EV, and Volkswagen’s ID.4 EUV.

Looking beyond the new vehicle market, there are more affordable EV models that may be more suitable for low-income and middle-income individuals, especially within the fast-growing pre-owned EV market. Sites such as CarGurus, Carvana, and MYEV.com offer first and second generation EVs that can be less expensive than comparable gasoline-powered vehicles, accounting for lower fuel and maintenance costs. Additionally, there are local dealers in some communities that exclusively sell EVs and ship nationwide. For example, pre-owned models like the Chevy Spark EV, the Nissan Leaf, the Chevy Bolt, and the Volkswagen e-Golf can be purchased for less

²¹ Retrieved from: https://evadoption.com/ev-models/
There are affordable options for EVs today, and as adoption increases, the downward price trend will continue. However, policymakers must do their part to dispel myths surrounding affordability by discussing the total cost of ownership and promoting pre-owned markets.

However, policymakers must do their part to dispel myths surrounding affordability by discussing the total cost of ownership and promoting pre-owned markets. Beyond this, it is important to focus on all e-mobility solutions so that those who cannot afford a personal vehicle, will have access to cleaner transportation.
EV-powered car sharing programs can increase access to e-mobility for individuals who do not purchase personal vehicles. Rideshare and delivery network companies have pledged to go fully electric in the coming decade, and have pledged to assist in expanding access for consumers outside of vehicle ownership. This pledge would make urban areas more equitable, accessible, and environmentally friendly. As fully electrified ridesharing becomes a reality, the incorporation of equity into the entirety of the transition should not be compromised. Most rideshare drivers identify as BIPOC, with 63% identifying as not white. In addition, micromobility options such as scooters and bikes can be leveraged to service communities that are less likely to own and drive personal vehicles.

**EV Registration Fees: A Barrier for Underserved Communities**

Some states have adopted EV registration fees under the guise of addressing declining gas tax revenues, due to new vehicles’ increased fuel efficiency and inflation. As of 2020, 28 states charge EV registration fees ranging from $50 to $200. However, beyond doing little to fill states’ transportation budget gaps, these fees discourage EV ownership in BIPOC and underserved communities who would most benefit from EV adoption. At minimum, policymakers in states with existing EV registration fees should push to exempt households below a certain income level, households who live in heavily-polluted communities, and/or vehicles priced below a certain value from any EV registration fees.

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23 The gas tax has not risen since 1993. Information accurate at the time of publication, subject to change thereafter.

EVs: The Oregon Clean Vehicle Rebate Program (OCVRP) provides rebates for Oregon drivers who purchase or lease zero emission vehicles. It is not a tax credit. This allows access for individuals who may not benefit from a tax credit due to not having a tax liability or who may not have the time or resources to await the processing times and upfront costs. OCVRP offers rebates for eligible consumers who are determined to be “income-qualified.” Individuals who are income-qualified can receive a maximum of $5,000 from the program in rebates.

Furthermore, Charge Ahead rebates can be put toward new or used EVs. This ensures that individuals who need to participate in the secondary EV market can do so with assistance from the rebate program.

E-bikes: In 2015, the Bedford Stuyvesant Restoration Corporation (Restoration) began to understand barriers to bike ridership in low-income and BIPOC New Yorkers through the Better Bike Share Partnership. While NYC’s bike-share was popular upon implementation, data quickly demonstrated that riders engaging in the program were overwhelmingly white and male.

Restoration, in an effort to promote equitable access to and adoption of micromobility, focused on the following strategies:

- Increase membership in existing discount programs and participation in community engagement programs.
- Grow and scale discounted programs to reach low-income and underserved populations that are not currently a community of focus or reached.
- Increase job opportunities for BIPOC.
- Increase the number of safe places to ride in NYC community districts that are historically underserved.
- Integrate bike share into the workplace as a wellness tool for employers, employees, and clients.

Importantly, these strategies demonstrate a community-first approach that addresses a myriad of social, economic, and cultural factors to inequities and barriers to adoption.

Restoration’s equity program was successful in expanding bike discount programs to include Supplemental Nutrition Assistance Program (SNAP) recipients, worked in neighborhoods to build a citywide bike share equity movement, and surfaced diverse leaders and champions for the Citi Bike system.
A more in-depth analysis of the program can be found here. Takeaways from this program can be used to inform new and existing e-bike programs.

Mass Transit: In an executive order to electrify the transportation sector in California, Governor Gavin Newsom of California included provisions to electrify public transportation by 2035. The directive requests that transit agencies and local governments explore near term solutions by the end of 2021 to reduce the carbon-intensity of public transit options.

The executive order includes the development of clean passenger rail, transit, bicycle, and pedestrian infrastructure. Importantly, the order requires coordination of investments and work between all levels of government including rail and transit agencies to support the development of multiple e-mobility options.

**Rebates and Incentives: Ensuring Access to Those Who Need Them Most**

Policymakers at all levels of government have created rebates and tax incentives to lower the cost of electric vehicles, particularly for the personal consumer; however, they have been crafted in ways that make it difficult for underserved communities to take advantage of.

Traditional rebates can take weeks or months to arrive to consumers after the purchase of a vehicle. The prospect of that delay can dissuade potential car buyers from purchasing an EV, particularly consumers within lower income brackets. Therein rebates should be offered at the point of sale or purchase so the discounts can be realized immediately. In California, consumers who are income-restricted can qualify for instant rebates of $50 or more for EVs that have a total range of 40 miles or more.

Meanwhile, tax credits for EVs have historically been utilized by wealthier consumers rather than car buyers at lower income levels. Especially given that many lower-income households have limited tax liability - meaning that even on tax day they can only claim a small portion of most advertised EV tax credit amounts - tax credits are not an effective way of making EVs more affordable and accessible for most lower-income households.

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First-time EV Buyer Program

For many Americans, owning a vehicle is essential to their daily lives, and still is considered a key aspect of the American dream. Similar to that of the first-time homebuyer program, a first-time EV Buyer Program will help give individuals and families in need access to otherwise out of reach necessities. This is a critical step towards a more sustainable and healthy lifestyle.

The Department of Transportation must work to establish state programs and federally backed loans to assist frontline Americans with the transition to EVs. These programs should assist with down payments, registration fees, and special loans with reduced interest rates, and in-home charging equipment installation.

The program should be available to anyone who meets any of the following conditions:

- An individual who has not previously owned an EV (sedan, SUV, or truck)
- An individual living in low emission zones (LEZs) and/or overburdened communities
- An individual/household whose income qualifies in their state.

A recent study on the distribution of EV rebates in California completed by Guo and Kontou (2021) demonstrates the following: "We find income- and advantage-based disparities in the adoption of PEVs through the California Vehicle Rebate Program. Equity analysis via Lorenz curves, and Gini and Suits coefficients uncovers that the bottom 75% based on median income census tracts receives only 38% of the total PEVs subsidies. On the other hand, the top 12.5% of the most advantaged census tracts receives a quarter of the total rebate amount. Findings are well-aligned with existing work that underlines the vertical inequity of programs such as Federal tax credits, and specifically the qualified plug-in electric drive motor vehicle credit."
Public Transit: Incentivizing Adoption of Electrified Options

Educating community members on what they stand to gain from adoption of e-mobility is especially important in areas that have suffered from a lack of access to new technologies in the past.

BIPOC or low-income communities disproportionately rely on public transportation in the United States\textsuperscript{27}. It follows that these communities are the ones who suffer the most from pollution associated with diesel-powered transit and school buses. A growing body of literature chronicles how diesel buses have serious negative cognitive and health impacts on kids who ride them; diesel emissions account for about a quarter of the transportation sector’s overall carbon emissions\textsuperscript{28}.

Public transit buses are primed for electrification due to their repetitive routes that allow for charging cycles and their increased efficiency when compared to diesel engines, leading to the potential elimination of tailpipe emissions. Fiscal analyses demonstrate that electrifying buses can save around $525,000 over the lifetime of the vehicle due to decreased fuel and maintenance costs\textsuperscript{29,30}.

Policymakers can earmark funding for electrification of transit fleets and incentivize local adoption of electric buses, ensuring that communities who disproportionately rely on public transit are first prioritized in these programs.

In sum, there are a number of policies that can be used to engage with consumers and address barriers to e-mobility adoption:

- Provide funding to support the development of consumer engagement programs for all forms of e-mobility, including education for car dealers about EVs (Local)
- Increase e-mobility adoption by public transit agencies, corporations, and government entities by electrifying fleets and allocating more funds to support the purchase of electric buses and shared emerging technologies such as electric ride-hail services, micromobility, and autonomous vehicle fleets (Federal/State/Local)

Policies and Discussion

- Develop comprehensive certification curriculum for new and pre-owned vehicle dealers to educate consumers on the benefits of EVs and provide information on ownership and charging installation. Include financial incentives for salespersons per EV sold (State)

- Ensure that the development of e-mobility programs and initiatives are coupled with resource allocation for sufficient case management, consumer communication, and follow up throughout the duration of the program (State/Local)

- Eliminate extraneous fees and any tax liability for financial incentives, such as an EV registration fee, on the consumer. Such fees and liabilities act as barriers for consumers to purchase EVs and therefore benefit from e-mobility. If these fees do exist, households below a certain income level, households who live in heavily-polluted communities, and/or vehicles priced below a certain value should be exempt from any EV registration fees (State)

- Work with states to develop a nationwide public information campaign about e-mobility to dispel common myths with potential consumers, including high costs, range limitations, and low reliability (State)

- Offer robust transferable and refundable rebates for new and pre-owned EVs that are available for consumers to use at the point of sale or purchase. Qualifying vehicles can have a maximum MSRP cap (which should be developed from income analyses of the policy’s region) not including other incentives. Ensure applicants can qualify for additional rebates if they reside in an environmental justice community as defined by the US EPA (State/Local)

- Allocate funding in the federal infrastructure bill for grants that transit agencies, nonprofits, and regional metropolitan planning organizations can apply for to educate transit users about the benefits of electric buses (Federal)

- Educate communities about rebates and tax credits— include additional information about how to determine whether consumers qualify for them and official program eligibility confirmation (Federal/State)

- Enable EV manufacturers and other e-mobility companies to sell directly to consumers (State/Local)

- Develop electric car-sharing programs which focus on underserved communities, particularly working families (Local)

- Provide incentives for micromobility companies to invest in an extensive engagement campaign on the benefits and usage of electric scooters and bikes (State/Local)
Workforce and Economic Development

E-mobility is already providing opportunities for BIPOC and underserved communities to secure new jobs and careers. These opportunities include positions for electricians to repair and maintain light-duty electric vehicles, for a well-trained workforce to build and maintain electric buses, and for technicians to build and maintain public and private charging infrastructure.

Automotive companies, both new and legacy, are expanding operations to build new electric vehicles. Manufacturing opportunities are already beginning to take hold in the Midwest, where Rivian is expanding its manufacturing operations in Normal, Illinois, and is expected to bring 1,300 jobs to the city³¹. GM plans to invest over $40 million to retool its plant to manufacture electric vehicles³² and Ford is retooling its Michigan plants for the Ford F-150 Lightning³³. Especially for communities that have suffered a loss of manufacturing jobs, e-mobility production offers a promising new path to community economic development and reinvigoration.

The 2035 Report from the University of California Berkeley, which analyzes the policy scenario of clean energy development and use of 90% in the United States by 2035, demonstrates the incredible economic impact that a transition to clean transportation and energy could mean for job creation.

The 90% Clean case supports a total of 29 million job-years cumulatively during 2020–2035. Employment related to the energy sector increases by approximately 8.5 million net job-years, as increased employment from expanding renewable energy and battery storage more than replaces lost employment related to declining fossil fuel generation. Overall, the 90% Clean case supports over 500,000 more jobs each year compared to the No New Policy case³⁴.

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³⁴ http://www.2035report.com/wp-content/uploads/2020/06/2035-Report.pdf?hsCtaTracking=8a85e9ea-4ed3-4ec0-b4c6-906934306dbb%7C68c2ac2-1db0-4d1c-82a1-65efdaa6c1
Manufacturing jobs in clean energy are often accessible without four-year degrees and offer higher than average wages. In California, for example, manufacturing jobs pay an average of $80,000 annually.³⁵

Despite incredible market opportunity and favorable global trends, the U.S. currently remains behind global competitors (China and the EU) in both EV assembly and EV components production.³⁶

Domestic transition to e-mobility demands incredible job growth in the manufacturing of new component parts (batteries, electric motors, power electronics) and charging infrastructure construction.³⁷

Public and private investment in the e-mobility transition could yield 2 million new jobs by 2035.³⁸

Late-shift workers, who are disproportionately low-income people of color, suffer from public transportation commute times that are over twice as long as car rides due to transport delays.³⁹

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³⁷ Ibid.
EVHybridNoire worked as a part of the CHARGE Coalition to lay the groundwork for federal transportation electrification strategies in 2021. Funding and support for workforce development programs are central to the coalition’s policy recommendations, including:

» Requiring that transit agencies complete a plan within one year that incorporates feedback from the frontline workforce to transition to 100% zero emission vehicles

» Incorporating retraining into all timelines and budgets associated with the transition to zero emission fleets

» Providing protections and trainings for existing transit agencies’ workforces

» Creating an interagency workforce development program for applicants who reside in underserved communities with a focus on training a diverse manufacturing, assembly, operations and maintenance, grid integration, and driver workforce

» Directing funding agencies to require a U.S. Jobs Plan for contracts, grants, or other agreements of $5,000,000 or more for the purchase of manufactured goods or of services based on an independent cost estimate.

» Ensuring equitable deployment of jobs and job training programs so that frontline communities are prioritized and have an opportunity to benefit from these jobs.

» Integrate bike share into the workplace as a wellness tool for employers, employees, and clients.

Strong workforce development programs ensure that the existing transit workforce is able to offer input to transition program development and budgets time and resources for retraining. Furthermore, the prioritization of underserved communities in workforce training programs is crucial to allow equitable access to new jobs and industries.
A sound strategy should be implemented to ensure that the workforce transition is smooth and equitable. E-mobility workforce development strategies should be centered around workforce training, employment programs, and initiatives that focus on green job creation and retention. These programs can focus on developing a range of economic opportunities for BIPOC and underserved communities. A truly diverse workforce can be a part of the e-mobility future, bringing jobs and building back the middle class as the automotive sector did in a historic way for communities of color during the time of the Great Migration.

In addition, opening up opportunities for contractors and suppliers from BIPOC and underserved communities will be key for economic development.

To make this a reality, leaders should:

- Advance and fund partnerships between government agencies and technical/trade schools/community colleges to develop a curriculum that would build diverse workforce pipelines for careers related to grid modernization, charging infrastructure deployment, and maintenance (Federal/State)

- Work with Historically Black Colleges, Tribal Institutions, and Universities (HBCUs)/Hispanic Serving Institutions (HSIs) and other underrepresented institutions to develop robust job pipelines into electrification training programs for students (Federal/State)

- Coordinate with federal, state, and local departments of transportation and environmental quality agencies to develop a robust e-mobility workforce development program that identifies, trains and retains people from underserved communities (Federal/State/Local)

- Build partnerships with the e-mobility companies and incentivize them to hire diverse individuals into jobs by providing education, skills training, and industry certifications (Federal/State/Local)

- Prioritize women, LGBTQ*, and BIPOC-owned businesses for the installation of workplace and public charging stations (Federal)

- Prioritize utilization of diverse suppliers and contractors from BIPOC and other diverse communities by increasing the percentage of contract awardees to these groups (Federal/State/Local)
Community Engagement

Diverse communities will likely embrace transportation electrification policies and programs, but only if they are aware of the programs and their benefits, and their decisions are directly incorporated in their creation and implementation. Prioritizing education and engagement of diverse communities from the beginning to end of any transportation electrification effort is critical to advancing adoption. It is key that policymakers first assess community needs and design flexible programs accordingly, rather than simply notifying communities of incoming programs and expecting widespread adoption. The community assessment process must be a true attempt to evaluate community desires related to e-mobility options, rather than to confirm previously held assumptions. Too often this approach leads to a solution that is incompatible with community desires. Those who are closest to the problem are often closest to the solution.

It is key that policymakers first assess community needs and design programs accordingly, rather than simply notifying communities of incoming programs and expecting widespread adoption.

After learning what communities want and need from transportation electrification, through community research such as focus groups, town halls, and listening sessions, policymakers should ensure those insights are incorporated into any electrification policies and programs. This process has led to implementation of EV ride voucher programs, ride-and-drive events, and utility educational programs highlighting e-mobility pilots and programs to customers across the country. Similarly, this process can be used to develop and implement multi-modal programs.

EVHybridNoire has conducted extensive engagement in various cities to understand the needs of specific communities regarding e-mobility, to help local leaders provide the best possible outcomes for residents. In Orlando, EVHybridNoire implemented a complete community engagement strategy centered around the city’s EV Ready Ordinance. The organization held virtual meetings, conducted interviews with community members, and provided feedback and a draft engagement and outreach plan to the city council. In Kansas City, we developed an outreach strategy for the city to educate residents about the importance of the streetlight charging initiative. And in Cleveland, EVHybridNoire connected with Black residents of the metropolitan area to learn about their transportation needs, via focus groups, interviews, and online surveys. Community engagement projects like these are invaluable for ensuring community input and awareness of initiatives, ultimately leading to higher adoption and a higher degree of trust in community e-mobility programs, and policymakers should insist upon and support such
Fast Facts

- Projects developed with continued community input, engagement, and decision-making are more likely to be widely accepted, improve the consent process, implement effective solutions, and increase trust in local governance⁴⁰.

- Lack of consumer education and engagement tools are hindering EV adoption, along with misconceptions around charging, cost, and vehicle range⁴¹.

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community engagement wherever possible.

There are various ways policymakers can help communities learn more about the benefits of e-mobility, and have their voices heard in the development and deployment of e-mobility projects:

- Increase funding and prioritization of education & outreach around e-mobility in BIPOC, underserved and underrepresented communities in urban and rural areas (Federal/State)

- Ensure that transit agencies and other public agencies engage directly with community-based organizations and other leaders from diverse communities, so that these communities are seeing themselves in e-mobility public outreach efforts (Local)

- Collaborate with school districts, utilities, and local lawmakers to accelerate the adoption of fully electric school buses (Local)

- Ensure that all e-mobility programs incorporate feedback from impacted communities, before, during, and after a program’s development (Local)
Policies and Discussion

- Establish partnerships with nonprofits, utilities, and others to improve awareness of e-mobility incentives, reduce administrative burdens, and connect with a larger audience (Federal/State/Local)
- Establish data collection standards that protect people’s privacy, health records, and maintains equity as a priority (Federal)
- Incorporate e-mobility into existing community outreach programs focused on environmental justice (Local)

Public Health

Research shows that where a person lives can be a powerful indicator of their health outcomes, and that includes proximity to highways and their vehicle emissions. There are a wide variety of environmental and societal factors that lead to the makeup of someone’s health, known as the “social determinants of health,” as displayed in Figure 1. Understanding social determinants of health is critical to grasping the many paths through which e-mobility policy (or the lack thereof) can influence health outcomes.

Social determinants of health (SDOH) are the conditions in the environment where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks. According to the Economic Innovation Group, about 17 percent of the U.S. population lives in places with limited opportunities for education, good housing and employment, and more than 1 in 6 people in the United States live under chronic stress.

Aside from these structural factors, the environment in which people live is intimately related to health outcomes. Prolonged exposure to air pollution leads to increased respiratory distress, particularly in underserved or BIPOC communities. These communities are often far more burdened with worse air pollution than other areas — a burden associated with everything from pediatric asthma and inhibited child development to increased cancer risk.

42 https://www.who.int/teams/social-determinants-of-health
Transportation emissions account for a significant portion of air pollution, and those living near highways and roadways are exposed to more dangerous levels of air pollution.

Many European cities establish low-emission zones (LEZs) to tackle problems related to air pollution, emissions, and congestion. LEZs are primarily focused on cutting traffic pollution by restricting or deterring the movement of high-emission vehicles in designated areas. LEZs have been proven to be effective at reducing air pollutants and protecting against adverse health outcomes⁴⁴.

The establishment of similar zones in the United States has great potential to protect environmental justice, underserved, and BIPOC communities who are disproportionately impacted by transportation emissions.

Furthermore, shifting from LEZs to zero-emission zones (ZEZs) is the next step to ensure that the establishment of zones are progressive and congruent with policy initiatives to move towards zero-emission mobility.

A study by the Environmental Protection Agency’s National Center for Environmental Assessment showed that, compared with the general population, BIPOC and low-income residents, respectively, were exposed to 54 and 35 percent more particulate matter air pollution, the especially dangerous type of air pollution that is small enough to lodge in our lung tissue⁴⁵.

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### Fast Facts

- Four million children develop asthma every year as a result of air pollution from cars and trucks, equivalent to 11,000 new cases a day⁴⁶.

- According to the American Lung Association, people of color are over three times more likely to be breathing the most polluted air than white people⁴⁷.

- Significant investment in EV infrastructure can save 150,000 lives and avoid $1.3 trillion in health and environmental damages through 2050⁴⁸. This estimate does not include investments in electric public transport and other e-mobility solutions, which would increase benefits beyond these projections.

- Carbon emissions from the transportation sector have grown by around 24 percent over the last 30 years. Between 2012 and 2018, transportation sector emissions have grown every year⁴⁹.

- During the COVID-19 pandemic, the lack of transportation options in communities of color hindered the rollout of the vaccine⁵⁰.

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⁴⁷ “Key Findings | State of the Air.” Accessed May 26, 2021. /research/sota/key-findings.

⁴⁸ “2035 Transportation Report.” University of California Berkeley: Goldman School of Public Policy, April 2021.


Transportation emissions account for a significant portion of air pollution, and those living near highways and roadways are exposed to more dangerous levels of air pollution. E-mobility has the potential to eliminate those emissions, resulting in significantly decreased levels of respiratory distress, particularly for BIPOC and underserved communities, many of which live near those highways and roadways and their resulting air pollution.
When air quality data is inconsistent or incomplete, our ability to understand and address dangerous pollution is seriously handicapped. Currently, air quality monitors routinely miss both day-to-day pollution and extreme pollutant-inducing events, and placement of existing monitors is often biased towards underrepresenting true pollution levels. In addition to these inaccuracies, more than 120 million Americans live in communities with no official EPA pollution monitors at all for small particle pollution. Studies that inform the way we think about air quality, such as the annual State of the Air Report, often draw on data that is inherently incomplete due to a lack of official monitors.

The issues and inconsistencies of our air quality monitoring system have real-world consequences: policy decisions and environmental justice frameworks are informed by this flawed network. Furthermore, many Americans rely on the day-to-day data to determine whether or not it is safe to engage in outdoor activities.

Instead of utilizing existing systems and methods to install and utilize air quality monitors, policymakers can a) improve and expand existing networks, particularly in BIPOC and under-resourced communities and b) dedicate funding to provide community organizations with a network of low-cost, easy-to-use, portable air pollution sensors.

Community groups can use these monitoring systems to better understand pollution in the environment and begin to correct inaccuracies in federal data.

For example, data in one Baltimore neighborhood which installed community monitors revealed 24% higher fine particle pollution than government monitors, according to the report by Environmental Integrity Project.

A Minnesota Pollution Control Agency’s community air quality monitoring project, in which community monitors were placed in underserved and BIPOC communities where state monitors did not exist, demonstrated elevated particulate matter levels compared to state monitors.

Policymakers can include this more comprehensive and accurate community monitoring data in environmental justice allocations.

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To realize this vision, policymakers must better understand the positive health impacts of a transportation system powered by multimodal e-mobility, incorporate that information into e-mobility policies and programs, and prioritize e-mobility solutions for the communities who suffer most from air pollution and its resulting public health impacts. Some policy recommendations for making this actionable include:

- Prioritize deployment of e-mobility solutions and infrastructure in communities with unhealthy air quality (Federal/State)

- Fund community air quality monitors for areas with no state or federal monitors, and allow community-level data to be incorporated into allocation decisions and environmental justice frameworks (Federal/State)

- Fund and conduct research on the health benefits of transportation electrification scenarios, with a specific interest in BIPOC, underserved, and tribal communities in urban and rural areas (Federal/State)

- Fund and conduct additional research into the predicted shifts of air pollution impacts from urban communities to rural communities living near power plants (Federal/State)

- Develop and incorporate better mapping tools to systematically identify overburdened and underserved communities of color (Federal/State)

- Establish low-emission zones in high-traffic areas and in environmental justice communities. Create timelines and processes to transition these zones to zero-emission zones with the adoption of zero-emission vehicles and public transit (State/Local)

- Improve and expand existing official air quality monitor networks particularly in BIPOC, underserved, rural and tribal communities and update requirements for accurate reporting of air quality data (Federal)

- Dedicate funding to provide community organizations with a network of low-cost, easy-to-use, portable air pollution sensors and allow community air quality data to be incorporated in funding allocations and environmental justice community designations (Federal/State/Local)

**Clean Vehicle and Infrastructure Deployment**

Regarding the vehicles themselves, policymakers have a critical role to play in ensuring that consumers and commuters from all walks of life continue to see an increasing number of e-mobility options that suit their needs and budgets. One prime example is with regard to climate and clean air policies, clean car standards and zero emission vehicle standards that have been established by cities and states across the country. Simply put, U.S. automakers would not be offering as robust an assortment of new EV models right now were it not for the clean car policies advanced by California and other states that required those automakers to offer such clean vehicles
to consumers. Policymakers should continue to advance and strengthen such climate, clean air and clean vehicle policies, as they will help ensure that the private sector continues to expand the e-mobility options available to American consumers.

Lack of access to dependable charging infrastructure can be a significant barrier to widespread adoption of e-mobility solutions. Drivers need adequate access to chargers, whether at home, work, or a public location. Home charging is low cost and convenient for many, but public and workplace charging options are critical for longer-range travel, higher-mileage drivers, and communities without access to home chargers.

On average, it costs 4-6 times less to construct EV Ready buildings than it does to retrofit existing buildings.

Home charging accessibility is closely related to building codes and Right to Charge legislation. Updated building codes can increase access for residents of all multi-unit dwellings and save on costs. On average, it costs 4-6 times less to construct EV Ready buildings than it does to retrofit existing buildings. Right to Charge legislation (which provides residents with the right to install charging stations for their own use provided that certain conditions are met) and fair assessments to reimburse landlords/HOAs for electricity use ensures that tenants are able to utilize home charging.

However, only constructing new EV Ready buildings will not address barriers faced by those living in older multi-family buildings. In these cases, housing infrastructure may not currently support EV charging but residents may not be able to afford new or luxury housing. To increase access to home charging, some municipalities have chosen to apply EV Ready requirements to renovated buildings as well. The definition of a renovation that would trigger the requirement differs: San Francisco (Ordinance 92-17, 2017) defines it as “alterations and additions where interior finishes are removed and significant upgrades to structural and mechanical, electrical, and/or plumbing systems,” whereas New York City (Local Law 130, 2013) applies its

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53 Federal Support for EV Charging, Union of Concerned Scientists.
Policies and Discussion

ordinance where electrical service capacity is increased.

Robust community charging should be considered a necessity in areas with a high concentration of multi-unit dwellings and areas where home charging is limited. In urban areas, public charging is often offered by corporations and large chains and is disproportionately located in wealthier areas. This phenomenon leaves charging deserts in areas with renters and those in multi-unit dwellings without convenient access to home charging. The development of incentive programs for neighborhood-level peer-to-peer charging infrastructure hosted by community members offers a strong solution to combat the concentration of public charging in wealthier, inaccessible areas. These grants can be made available to local small businesses, places of worship, community centers, and schools. Given the inherent limitation, state agencies and local municipalities should invest resources to prioritize this deployment in multi-unit dwellings and other public areas.

Fast Facts

- Low-income communities are much less likely to have charging-capable parking: Less than 20% of households making $25,000 a year or less have access to parking that could be outfitted with charging infrastructure without modifications. According to the American Lung Association, people of color are over three times more likely to be breathing the most polluted air than white people⁵⁵.
- Transit agencies can reap significant savings by buying electric transit buses—almost $500,000 over the vehicles' lifetime compared to diesel buses by one estimate—which could assist to improve and maintain services in underserved communities⁵⁶.
- Existing policies are not achieving equity in charging infrastructure. For example, in Chicago as of 2018, 70% of all public charging stations were located in just three mostly white and affluent community areas. 47 of Chicago’s 77 community areas had no public charging at all⁵⁷.

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Furthermore, in underserved communities, simply installing charging stations is not enough to ensure their use and EV adoption. Some community members have learned to interpret the siting of a charger as being associated with imminent displacement and gentrification, since they believe that access to e-mobility is a privilege for only wealthy communities. This disconnect demonstrates a lack of community involvement and education in programs and initiatives, and in many cases likely stems from historic discrimination and inauthentic engagement by community leaders.

Many community members have learned to interpret the siting of a charger as being associated with imminent displacement and gentrification since they believe that access to e-mobility is a privilege for only wealthy communities.

Intentionality throughout the entirety of the infrastructure planning and deployment process is critical, and communities need to be consulted first to ensure that any infrastructure plan is reflective of the needs of the community. Community members should be consistently invited into discussions about the e-mobility solutions that work best for them and the design of the policy should reflect these insights. EV charging stations should come with easily digestible signage and labels that help the average person understand the stations’ purpose and value.

Policymakers can help with clean vehicle and infrastructure development by helping to:

- Fund e-mobility infrastructure that is targeted to diverse communities, using local, state, and federal competitive grant programs or formula programs to support streetlight, power pole, right-of-way charging and other equitable charging infrastructure solutions (Federal/State/Local)

- Increase e-mobility adoption by public transit agencies, corporations, and government entities by electrifying fleets and allocating more funds to support the purchase of electric buses and shared emerging technologies such as electric ride-hail services, micromobility, and autonomous vehicles (Federal/State/Local)

- Encourage utilities to upgrade electricity infrastructure in underserved, tribal, and rural areas, by providing incentives and supportive policy (Federal/State)

- Provide incentives via increased funding and policy focused on encouraging utilities to upgrade electricity infrastructure in underserved areas. Consider “bundling” purchase incentives (such as grants or instant rebates) with charging incentives (grants for home chargers or prepaid charge cards) (State/Local)

- Conduct a national assessment on the status of, challenges to, and opportunities for greater EV charging infrastructure deployment in underserved, tribal, and rural communities (Federal)
Charging laws in New Hampshire require that any charging infrastructure supported by public funds are “open access” and include multiple payment options.

“Open access” is the ability of an EV driver to initiate a charging session regardless of whether that driver is a member of the specific charging network. The passage of NH SB575 in 2018 made open access a requirement for charging stations in New Hampshire.

Open access is critical to ensure that users are not required to pay membership fees or subscription fees to access public charging infrastructure. These fees can be particularly prohibitive for low-income individuals attempting to utilize charging infrastructure.

Additionally, New Hampshire law notes that each public pay station must include multiple payment options. The inclusion of multiple payment options is critical to ensure that individuals who may not have updated smartphone technology are able to use public infrastructure.

In New Hampshire, the specific types of required payment options are not specified currently. Existing legislation in California requires credit card readers on all public chargers and includes frameworks that could be applied similarly in Northeastern States. However, even these regulations leave out consumers who are unbanked or do not have access to credit cards. Equitable standards should begin to include discussions of pre-paid charging cards that allow consumers to pay in cash.

Building equitable access to charging infrastructure necessitates open access laws and multiple payment regulations, ideally ones that are comprehensive even beyond credit cards and smartphones.
• Similar to guidelines in the 2020 EVs for Underserved Communities Act, deploy no less than 200,000 EV charging stations in underserved communities by focusing on multi-family housing units and charging stations at major centers of employment, and consider charging needs for different vehicles, such as medium and heavy-duty vehicles (Federal/State)

• Update building codes for both existing structures and new construction projects to require installation of electrical wiring and 240-volt supply for charging support in all 50 states, modeled after California’s 2015 mandate. Financial incentives should be provided for developers to install full chargers instead of just the wiring and supply box (Federal)

• Provide grants for neighborhood-level peer-to-peer charging infrastructure hosted by community members including but not limited to local small businesses, places of worship, community centers, and schools (State/Local)

• Ensure that tribal lands are eligible to apply for and implement clean transportation infrastructure funding, programs, and development (Federal/State)

• Strengthen fleet fuel economy standards to spur additional EV production from automotive companies, and provide additional financial incentives to auto manufacturers to push the development of zero-emission vehicles (Federal)

• Ensure that new and existing charging stations provide a range of accessible payment options to consumers without specific memberships and apps, allowing payment from digital wallets, prepaid cards, and credit cards (State)
CONCLUSION
At all levels of government, the efforts to expand equitable transportation electrification should focus on three aspects: (1) **center diversity and equity from the beginning** when developing transportation electrification programs, rather than it being an afterthought or plugged in halfway through; (2) **engage with communities** about transportation electrification, especially diverse communities, both to ensure they are aware of e-mobility and its benefits, and to understand their needs and interests regarding e-mobility and transportation broadly; and then (3) **incorporate those insights about what communities want and need to ultimately reduce barriers to accessing e-mobility policies and programs.**

These three considerations can be applied to the main dimensions of e-mobility that we covered in this report: **consumer engagement, community engagement, workforce and economic development, public health, and clean infrastructure deployment.**

These efforts can happen if there is a coordinated effort among multiple stakeholders — government, nonprofit, private sector — to prioritize equitable electrification. This toolkit provides the direction for that vision to come to fruition. The recommendations described above provide strategies for every stakeholder in the ecosystems to ensure all people, especially those from underserved communities, can have a say in promoting a cleaner and equitable transportation system.
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