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Equitable E-Mobility

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Summary

Transportation investments and planning in the United States have a long history of reinforcing racially-based patterns of inequality and exclusion. Electric vehicles and other forms of new mobility create an opportunity to disrupt these traditional patterns. Early experiences in California, Oregon, and elsewhere have begun to yield initial lessons about how to partner with traditionally underserved communities to more effectively promote more equitable e-mobility. However, much work remains.

Keywords: Business model, case study, education, market development, mobility system

1 Equity and Mobility

1.1 Mobility and Inequality Today

The United States Bureau of Labor Statistics calculates that the average American household spent USD \$9,576 on transportation expenses annually in 2017.¹ As the second highest expense for households - after housing - transportation sits at the crux of affordability for many families. Traditionally underserved communities – particularly low-income communities of color – face especially daunting mobility challenges. They are less likely to be able to afford reliable automobiles, relying instead on vehicles that may be cheap to operate, but expensive to fuel and maintain. They are less likely to have access to good transit service, safe bicycle facilities, or other transportation options. New mobility services like carsharing, bike sharing, scooters, etc. often bypass these neighborhoods altogether. Overall, the lack of access to affordable, reliable transportation options is a major factor inhibiting job opportunities and economic success for communities of color and low-income Americans.

1.2 How We Got Here

It is no surprise that new technologies tend to go first to communities with more wealth. However, the inequalities in America's mobility system are not simply a function of market forces, and they are definitely no accident. Transportation investments and planning in the United States have a long history of reinforcing patterns of inequality and exclusion, frequently on the basis of race. Early examples include the 19th

Century expansion of railroads and the “Oregon Trail” which brought wagon loads of settlers to live on land stolen from native Americans.

In the decades following World War II, the United States created new programs designed to encourage home ownership, including long term mortgage loans, federal loan guarantees, and tax-deductibility for home mortgage interest payments. Suburban development was encouraged and subsidized in most major metropolitan areas. Massive road projects enabled these new suburban dwellers to easily reach jobs downtown. Meanwhile, many of those new road projects and other “urban renewal” schemes involved destroying established communities of color. While residents were often promised replacement housing, it often failed to materialize, or was of poor quality. Protests during the civil rights movement led to further “white flight” out of urban and mixed-race neighborhoods to more racially segregated suburbs.

One of the most powerful examples of US government policies that reinforced racially segregated housing patterns was “redlining” in the US government’s program to back home mortgages. To help carry out this program, government surveyors assessed lending risks by neighborhood. The surveyors looked at a number of factors, but the “primary driver of the grading system was the racial and ethnic makeup of the neighborhood’s residents.”² Surveyors created maps and graded neighborhoods using a color code: green areas for “best,” blue for “still desirable,” yellow for “definitely declining” and red for “hazardous.”³ The “redlined” areas were deemed credit risks because of the influx or presence of racial and ethnic minorities. It was common to see things like “infiltration of Negroes and Orientals” listed as “detrimental influences” in descriptions of redlined areas.⁴ Below is an example of a redlining map.

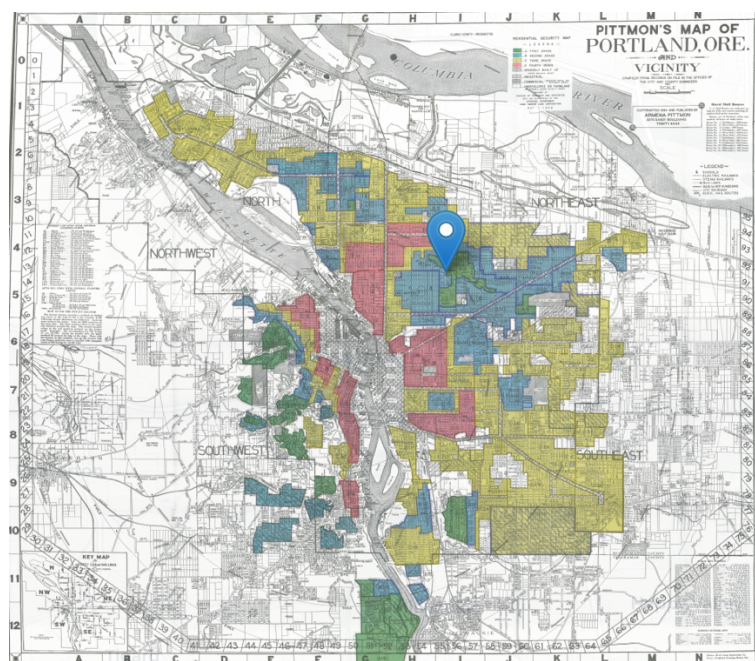


Figure 1: Redlining Map of Portland, Oregon

These inequities continue to manifest in well-documented racial and ethnic disparities in common quality of life indicators like education, economic stability, distribution of transportation burdens and benefits, and others.⁵ For example, greater exposure to transportation pollution in communities of color is tied to decades of segregation and structural racism in land-use decisions and government policy, which has resulted in low-income communities of color living near busy roads, freeways, ports, and other freight corridors at higher rates than wealthier communities and whites. In June 2018, the California Environmental Protection Agency’s Office of Environmental Health Hazard Assessment found that approximately 89 percent of people living in the poorest, most polluted regions in the state, are people of color.⁶ This disproportionate exposure leads to higher rates of asthma, cancer, and other pollution-related illnesses, increased health costs and more missed school and work days for people of color.⁷

Since Americans' equity in their homes is their primary source of wealth, communities of color did not build wealth as quickly as white communities. In 2013, for every dollar a white family had, the median Black family had 8 cents and the median Latino family had 10 cents.⁸

The California Air Resources Board acknowledges that “the way we grow also imposes and often reinforces long standing racial and economic injustices by placing a disproportionate burden on low-income residents, who end up paying the highest proportion of their wages for housing and commuting.”⁹ In short, as one author has noted, “Race and mobility are intertwined because we designed segregation into our built environments and how we police them...”¹⁰

1.3 Equity and Equality

Given this history, it's important to distinguish between “equity” and “equality,” two terms that are often interchanged in policy discussions. Equality generally refers to treating people similarly. For example, charging everyone the same price to ride the bus may seem equal and “fair.” However, this assumes everyone starts from the same place and needs the same help. By contrast, an equity approach focuses on making sure people receive what they need to be successful and recognizes the need to overcome past inequality. The figure below highlights the difference graphically.¹¹

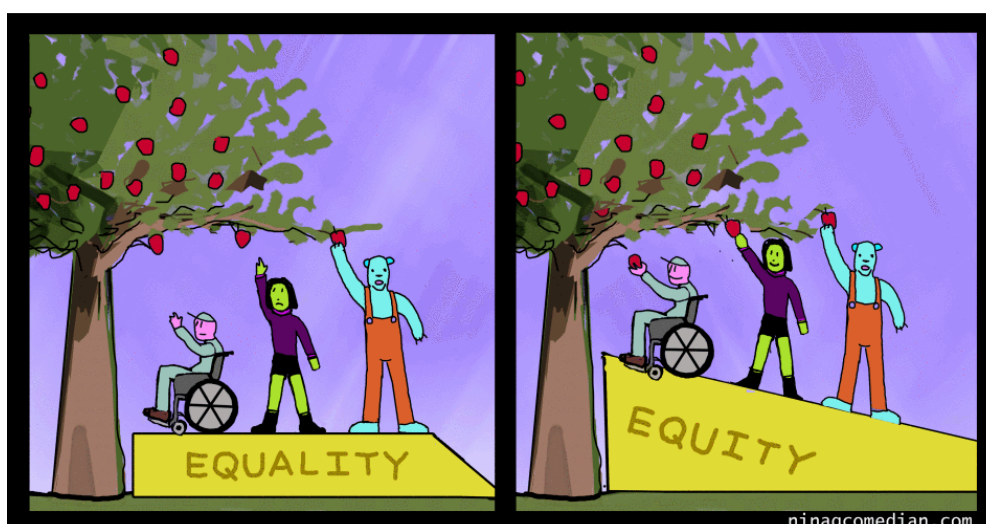


Figure 2: Contrasting Equality and Equity

To put this in mobility terms: if your neighborhood was bulldozed, and you were only allowed to buy a home in an outlying area, where transit service is crowded and infrequent, and racist housing policies have prevented you from building wealth that would allow you to move, being charged “equal” bus fare to wealthier residents in closer-in neighborhoods may feel anything but equitable.

Forth believes it is critical to demonstrate how electric and smart mobility technologies can make life better for traditionally underserved communities, for at least three reasons. First, these communities are most in need of affordable mobility options. Second, the benefits to the economy, the environment, and public health are all generally greater when these technologies are deployed in such communities. Third, if policy makers and the general public believe these technologies represent “privileged mobility” for the wealthy, they will not support them – or the public policies and programs that will help the industry grow.

2 Equity and New Mobility

Transportation, environmental, and energy advocates of all kinds have grappled with how best to address equity concerns in their work. For example, bicycle advocates have been criticized for focusing on enabling recreational riding and infrastructure for relatively affluent riders over the needs of cyclists who depend on bikes for daily transportation.¹² Similarly, groups fighting for improved transit service have also seen divisions around racial and economic lines. In the mid-1990s, for example, a group of civil rights groups challenged transit policies in Los Angeles for focusing more funds on rail service supporting wealthier and whiter riders, rather than bus service that primarily served lower-income riders and people of color.¹³

With this history, it is hardly surprising that electric vehicles and other forms of “new mobility” would also raise concerns that the benefits of these technologies would not reach communities of color. A number of efforts have emerged in recent years to address these concerns through various projects and initiatives, and have begun to yield results in several different areas.

2.1 Equity-focused Policies and Programs

One of the first efforts to systematically address equity concerns in electric mobility was the “Charge Ahead California” campaign. Launched in November 2013, this effort brought together a coalition of environmental and equity organizations to ensure that the benefits of electric mobility would reach lower income households in communities most impacted by air pollution.¹⁴ Over the following years, these organizations achieved a number of victories, establishing the state of California as a leader in this space. Some major policy and program victories include:

California Senate Bill 1275,¹⁵ known as the Charge Ahead California Initiative, states that California must “increase access for disadvantaged, low-income, and moderate-income communities and consumers to zero-emission and near-zero-emission vehicles, and to increase the placement of those vehicles in those communities and with those consumers to enhance the air quality, lower greenhouse gases, and promote overall benefits for those communities and consumers.”

California Senate Bill 350¹⁶ finds and declares that “[w]idespread transportation electrification requires increased access for disadvantaged communities, low- and moderate-income communities, and other consumers of zero-emission and near-zero-emission vehicles, and increased use of those vehicles in those communities and by other consumers to enhance air quality, lower greenhouse gases emissions, and promote overall benefits to those communities and other consumers.”

SB 350 also declared that there is insufficient understanding of the barriers for low-income customers to clean transportation. The bill therefore required the California Air Resources Board to complete and publish a study on those barriers.¹⁷ This legislation also mandated the creation of a Disadvantaged Communities Advisory Group to advise state agencies.¹⁸

Both California and Oregon offer electric vehicle incentives that are larger for lower-income households. A new program in California is also testing a “one stop shops” to make it easier to deliver a range of incentives and support to low income consumers.

2.2 Equity-Driven Investments

One of the major ways that California and other regions have begun to address equity is to earmark significant investments for this purpose.

California has set minimum percentage investments in disadvantaged communities for many of its programs. For example, California Assembly Bill 1550¹⁹ requires at least 25% of cap-and-trade investments

to be spent in disadvantaged communities with an additional 10% benefiting low-income communities and households, for a total of 35% going to disadvantaged and low-income communities. Assembly Bill 523²⁰ sets similar requirements for the Electric Program Investment Charge fund, while the California Air Resources Board Mitigation Trust Plan²¹ designates 57.5% (\$172.5 million) of the \$300 million allocated for ZEV infrastructure to low-income and disadvantaged communities. All told, California has earmarked hundreds of millions of dollars for programs specifically focused on serving low income and traditionally underserved communities.

Electric utilities across the United States are increasingly investing in transportation electrification, with over \$1 billion already committed and approved by regulators. Many of these utility proposals are also earmarking a share of program dollars or infrastructure investments for low income communities.

2.3 Demonstration and Pilot Projects

Earmarking funds to support traditionally underserved communities can be a good first step. However, these communities face unique barriers and challenges to implementing new mobility solutions, and simply applying more money to the problem is rarely adequate. It can even be counterproductive. For example, placing charging stations in apartment buildings and low-income neighborhoods where residents do not own electric vehicles may simply drive up rents and accelerate gentrification.²²

Therefore, it is often much more effective to invest equity-focused funds to advance new mobility in focused demonstration and pilot projects intended to identify and overcome specific barriers that are faced by traditionally underserved communities.

For example, the California Air Resources Board has created EV equity programs and has invested \$280 million to date.²³ Currently, there are 16 equity projects at various stages of implementation from awards pending to projects up and running. Projects range from scrap and replace programs that give low-income individuals vouchers of up to \$9,500 for new or used EVs to electric carsharing projects in disadvantaged communities to clean vanpools for agricultural workers in the central valley.

Advocates have pushed for several years to expand carsharing, which offers access to a vehicle without the financial burdens of ownership, to traditionally disadvantaged communities that have not typically been early launch sites for these services.²⁴ Projects demonstrating shared electric vehicles for low income populations have been tested in several regions, including Oregon²⁵ and several European countries²⁶. These projects vary widely in size, from nearly \$5 million for the InclusivEV project in Europe to less than \$250,000 for Forth's project in Portland. These projects have identified a number of additional barriers that must be overcome, from populations that are underbanked and lack affordable data plans for smartphones to mobility applications that are monolingual. While none of these projects have yet created a financially self-sustaining model, these investments continue to spur experimentation and innovation.



Figure 3: First participants in Forth's Community Electric Vehicle Project

Demonstration and pilot projects can take many different forms, based on community needs and continuously evolving technology. For example, under Oregon law, undocumented immigrants are not allowed to secure a driving license. Forth developed and implemented a demonstration project using electric assist bicycles to serve this population.²⁷ Here again, the project identified a number of additional barriers and areas for further innovation to better serve this community's mobility needs.

One key lesson learned from early equity-focused demonstration projects is that overcoming barriers to serving traditionally underserved populations often makes new mobility services more accessible to the broader population at large. Most new mobility services are still “niche” services used by a relatively small section of the population. Making them more accessible, easier to use, cheaper, and more visible will help their overall growth – not just their relevance to traditionally underserved communities.

2.4 Culturally Appropriate Consumer Engagement

Many observers have noted that electric vehicles are not well marketed to consumers in the United States.²⁸ To the extent they are marketed at all, these campaigns have tended to focus on “early adopters” with messages that emphasize cool new technology and environmental benefits. Electric vehicles and other new mobility services have not generally been marketed to low income communities of color. In fact, traditional advertising – and advocacy – have often reinforced a message that electric vehicles are not for them.²⁹ For electric mobility to benefit traditionally underserved communities, we need to make sure that people of color see electric vehicles as a viable solution for their mobility needs.

Several organizations and programs have emerged to do this outreach. For example, Forth conducts dozens of “ride and drive” events annually. We partnered with Electrify America to deliver 31 days of “discover and drive” events in California during 2018, and worked closely with community based organizations to insure that over 50% of participants identified as low-income.³⁰ Forth now has “EV 101” education and outreach materials available in eight different languages – including French, in honor of EVS 32 - which we make widely available to the public and partners.³¹

Even more promising is the emergence of community-based voices for electric and advanced mobility. One of the most notable of these is EVHybridNoire,³² a nonprofit organization that connects a national community of diverse electric vehicle drivers. EVHybridNoire conducts events, outreach, focus groups, and other activities from a multicultural perspective. We will surely need more such efforts – as well as greater focus on these markets from the automakers themselves.

Here again, marketing that effectively makes the case for electric vehicles as better vehicles for a wider set of consumers will help drive increased sales overall. If we are going to reach 100% electrification of the vehicle fleet in coming years, we must move beyond the early adopters. In fact, in an increasingly diverse United States, it will quickly become impossible to meet our transportation electrification targets if electric car buyers remain overwhelmingly white.³³

3 Lessons Learned and Recommendations

While these efforts have barely begun to scratch the surface of what is needed, we already see a number of lessons emerging.

3.1 Start With a Community-Based Needs Assessment

One of the building blocks of an equity-focused approach to new mobility should be an assessment of overall community mobility needs. This assessment should ideally be led by trusted organizations grounded in the community. However, since community-based organizations and community members currently tend to have little information about the availability, cost, and other characteristics of new mobility technologies, a collaboration is needed between community-based organizations and mobility-focused organizations.

As outlined above, low income communities of color have been oppressed by government institutions and political leaders for generations. It is hardly surprising that they are reluctant to trust organizations or companies promising high-tech mobility solutions. Successful efforts need to begin with partnerships with trusted community-based organizations and leaders. The goal should be to build the capacity, funding, and staff expertise of community-based organizations to engage on mobility issues, and ensure that they have more power and control to shape programs in their community.

Obviously, mobility needs will vary substantially in urban, suburban, and rural communities. There are also diverse kinds of mobility needs that households need to address. Households will have different priorities for each mobility need. For example, for a daily commute to work, the most important factors could be reliability and cost. For occasional trips to medical or other appointments, flexibility and speed might be more important. For grocery and shopping trips, cargo-carrying ability might become more important.

One of the most powerful aspects of the current disruptions happening in mobility is their ability to provide a range of mobility services and options that can be customized and chosen for each individual trip. This holds out the promise of a more efficient, cleaner, cheaper mobility ecosystem as opposed to a “monoculture” that relies on one mode, generally a privately-owned car. For example, in a number of urban areas, residents can take a shared bike on one leg of a journey, transfer to a bus, then take an Uber or Lyft back home later in the evening. Community based needs assessments can help identify what kinds of mobility needs are currently hardest to meet; what sorts of services would help meet these needs; and what barriers currently prevent access to these services.

The Greenlining Institute’s Mobility Equity Framework³⁴ outlines a solid approach for identifying and prioritizing community mobility needs. Forth has collaborated with partners to complete needs assessments ranging in scale from a large section of Portland³⁵ to an individual neighborhood surrounding a planned affordable housing development.³⁶ These assessments can cost a few thousand dollars or be far more elaborate, depending on scale and resources, but it is critical that communities are engaged and heard early.

One exceptional example of a community-led approach is California's recent Transformative Climate Communities Program, which provides funding to help communities assess their own needs, and design and implement their own mobility strategies.³⁷ Funded by California's carbon Cap-and-Trade Program, it empowers the communities most impacted by pollution to define their "community vision, strategies, and projects to enact transformational change – all with data-driven milestones and measurable outcomes."³⁸

3.2 Take a Comprehensive Approach

Communities of color and low-income residents often face a wide variety of barriers to accessing electric and new mobility services. Some are straightforward: for example, many of these services are simply not offered in these communities. Other barriers are more complex: for example, public electric vehicle charging is rarer in low income communities, more residents live in apartment buildings that are difficult to serve with charging, and electric vehicles are generally not marketed to residents of these neighborhoods. Some barriers are quite complex indeed: for example, communities of color may lack access to affordable wi-fi, banking services, or driving licenses.³⁹ Mobility focused organizations will likely find themselves stretched beyond their traditional areas of work and expertise – all the more reason it is critical to have strong community partners.

If the barriers that must be overcome to make electric and new mobility accessible to communities of color are complex, the goals of mobility programs should be comprehensive as well. Communities do not see mobility in isolation. The Greenlining Institute's Mobility Equity Framework⁴⁰ highlights three overarching equity goals: reducing air pollution, increasing access to mobility, and enhancing economic opportunity. Often, environmental and transportation advocates from majority-white organizations focus on the first goal, highlighting the ways that electric mobility can improve air quality in impacted communities. While this is important, it is also critical that programs improve access to affordable, safe, reliable mobility options for communities of color themselves. For example, a project that helps wealthy residents drive cleaner cars may reduce pollution burdens on communities of color, but do nothing to help those communities get where they need to go. Finally, equity focused programs also need to enhance economic opportunities, for example by creating job opportunities for local residents or businesses. All three equity goals should be embedded in all phases of planning, development, and implementation

3.3 Check Your Anti-Car Bias

When white-led environmental and transportation advocacy groups seek to ensure electric mobility will benefit low-income communities of color, they often begin by assuming that private ownership of electric cars by low income households is not an option. Instead, they quickly pivot to promoting electric transit buses, shared electric cars, or other mobility strategies. This anti-car starting point contradicts the need for solutions to come from the community, not be imposed from the outside. However, it is understandable, since environmental advocates and urban planners have been working to reduce Americans' dependence on private cars for decades. However, despite this work, cars remain the dominant source of mobility across the United States, even for low income communities of color. Over three-quarters of American commuters drive alone to work, with another 10 percent or so carpooling.

Access to cars definitely does split along racial lines. In 2015, only 6.51% of White households lacked access to a car, compared to 19.71% of Black households.⁴¹ Low-income households are also more likely to be without a car. Analysis of U.S. Census data by Governing found that "Only 20 percent of adults living in poverty in 2016 reported that they had no access to a vehicle. That's down from 22 percent in 2006... the access rates among all Americans was virtually the same (6.6 percent) between those two years."⁴² In other words, even among low income communities of color, approximately 80% of households still have access to a car. Evidence also suggests that for most households, being without a car is a temporary and episodic condition.⁴³ Furthermore, households without cars are also highly concentrated in a handful of major

metropolitan areas. One 2011 study found that “just seven metropolitan areas host over half of all 100 metro areas’ zero-vehicle households.”⁴⁴

Many studies show that access to a car improves employment prospects, wages, and access to safer neighborhoods with better schools.⁴⁵ Unreliable transportation is a primary reason for losing a job, and a major barrier to finding work in the first place. One major study found that low income families with cars were twice as likely to find a job and four times as likely to stay employed.⁴⁶ Advocates should certainly continue working to expand a range of mobility options, and to make it cheaper and more convenient to choose alternatives to solo driving and vehicle ownership. However, as one observer notes, “policy for low-income households, therefore, needs to overcome the “cars versus transit” mentality that dominates discourse and move toward complementary and integrated solutions that take a pragmatic approach to cars while reducing the costs of cars on low-income people, the environment, and society.”⁴⁷

When electric cars could only be purchased new, there was an assumption that only the wealthy buy new cars. That concern is rapidly becoming moot as increasing numbers of used electric vehicles are coming onto the secondary market at affordable prices. However, it was never an entirely accurate assumption. Analysis by the U.S. Bureau of Labor Statistics⁴⁸ found that approximately 26% of all vehicles acquired in 1999-2000 were bought new. Race, age, gender, and urban vs. rural location all influenced the likelihood of a purchasing a new car. Income, of course, was also a major factor. Cars acquired by consumers in the top 20% for income were 35% likely to be bought new. However, there was little difference between consumers in the middle three brackets, and even among households in the lowest 20% for income, over 14% of their cars were purchased new.

There is evidence that low income and community of color households are less likely to purchase electric vehicles, but it is unclear whether this is due to a lack of marketing targeting these consumers, vehicle prices, or vehicle features and functionality.⁴⁹ These and other barriers need to be considered and worked through with community leaders.

Advocates’ reluctance to include cars as a solution may deny low income communities of color important economic opportunities. In fact, racist policies like redlining are often the direct reason that low income communities of color must rely on cars. Criticizing or judging households in these neighborhoods for their use of cars renews this harm. Finally, advocates who overlook private vehicles and pivot immediately to transit are reinforcing negative and destructive stereotypes about both electric cars and transit. Their implicit message is that (1) electric cars are expensive and not appropriate for low income communities of color and (2) public transit is dominated by low income people of color who have limited alternatives. Neither message is accurate, and neither is helpful to advancing a cleaner, more equitable mobility system.

3.4 Be Flexible, Humble, and Bold

In the United States, most e-mobility investments are only available for specific capital expenses, such as rebates for electric cars or payments for electric vehicle charging infrastructure. Electric utilities, in particular, are increasingly investing in charging infrastructure. However, the complex and interconnected challenges of clean and equitable mobility demand flexible funding sources. Funding must be available for community outreach, needs assessment, training, fare and rate discounts, and other purposes identified and prioritized by communities. In fact, in our locally developed demonstration and pilot projects, Forth has found that capital costs for vehicles and charging are often less than 20% of total project costs.

Government agencies, electric utilities, and cities are the main institutions driving e-mobility investments and programs in the United States today. All of these organizations tend to be slow moving and risk averse. However, “business as usual” thinking and approaches will not get us very far in dismantling the historic inequities in our mobility system. It will take bolder thinking and a willingness to prioritize equity in all phases of transportation planning, policy, and projects. Where traditional cost/benefit analysis may point to investing most heavily in programs that will increase e-mobility at the lowest marginal cost, an equity-

focused approach will ask instead how e-mobility investments can best be used to leverage more equitable outcomes.

Furthermore, most of these established organizations working on e-mobility, environmental advocacy, and transportation policy have been historically led and staffed by people who identify as white.⁵⁰ This is certainly true for Forth, as well as most government agencies and electric utilities. As traditionally white-led organizations, we need to be willing to undertake a profound course of introspection, assessment, and transformation if we are going to be effective allies in pursuit of equity. It is beyond the scope of this paper to explore the many facets of this work, but it begins with self-education, an understanding of history, a clear commitment to equity, and establishing processes for continuous learning and improvement.⁵¹ There are growing numbers of books, consultants, and online toolkits that can be helpful in this journey.⁵²

Institutional racism has taken decades to dominate our urban form and our mobility systems. It will not be deconstructed quickly or easily. There is no clear roadmap or silver bullet to make our mobility systems more equitable. With this in mind, it is critically important to approach this work with humility, transparency, and a commitment to continuous learning and adaptive management. We will surely make mistakes along the way – but the most unforgiveable mistake would be to do nothing.

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