

ELECTRIFYING RIDE-HAILING IN SEATTLE



Table of Contents

- Summary 2
- Introduction 2
- Research Review 4
 - Electrification Efforts by Ride-Hailing Service Companies 4
 - Electrification Efforts by State and Local Governments and Utilities 5
 - Drivers 6
 - The Realities of Ride-Hailing 6
 - Benefits of EVs for Ride-Hailing 8
 - Driver Perspectives of EVs 10
- Challenges for Ride-Hailing Electrification 11
 - Charging 11
 - Upfront Cost 12
 - Range 13
 - Available EV Models 14
 - Comparison with Hybrids 14
 - Awareness of EVs 14
- Recommendations 15
 - Outreach 15
 - In-person driver engagement 15
 - EV ambassadors 16
 - Direct driver messaging 16
 - 1-on-1 guidance 16
 - Actions to Electrify Ride-Hailing 16

Summary

App-based ride-hailing, through services like Uber and Lyft, has grown enormously in popularity over the past decade, contributing to more pollution and congestion. Vehicles used for ride-hailing travel are used much more frequently than personal vehicles, making them excellent candidates for potentially switching to an electric vehicle (EV).

Transitioning to an electric vehicle is often financially beneficial to ride-hailing drivers, saving thousands of dollars per year in fuel and maintenance costs. Interviews with Seattle-area drivers confirm cost savings is the main reason they'd consider an EV.

Despite how well-matched ride-hailing and EVs may be, ride-hailing drivers face challenges before making the switch, such as upfront cost, access to at-home charging, availability of larger long-range EVs, and awareness of existing incentives for EVs.

This report will briefly cover the existing state of electrifying ride-hailing services, including current efforts by Uber and Lyft, along with policies and incentives local governments and utilities are pursuing to encourage ride-hailing electrification.

We will also cover why driving electric may be advantageous for ride-hailing drivers, as well as some preliminary findings from interviews with ride-hailing drivers about their knowledge of electric vehicles and potential motivations for switching to an EV.

Lastly, this report will review lessons learned from relevant studies and initial outreach activities and provide recommendations for future engagement and action to electrify ride-hailing services in the Seattle area.

Introduction

Since Uber and Lyft were launched in Seattle in the early 2010s, the transportation sector in the United States has seen a rapid rise in app-based ride-hailing.

With their advent has come a new and convenient way for people to get around, potentially filling in gaps within the public transportation system and providing new options for shared mobility. But their growth has also brought increased congestion and pollution.

Ride-hailing vehicles are more likely to be high-mileage cars, often being driven for long stretches of time and covering 3-5 times more distance each year than the average personal vehicle.¹ In King County, Uber and Lyft drivers traveled approximately 33 million miles in 2018, equal to about 1.9% of all vehicle miles traveled.² At the same time, fewer than 0.2% of ride-hailing operators use electric vehicles in the

¹ Peter Slowik, Nikita Pavlenko, and Nic Lutsey, "Emerging policy approaches to electrify ride-hailing in the United States," ICCT: January 2019, https://theicct.org/sites/default/files/publications/EV_ridehailing_policy_approaches_20190108.pdf

² Melissa Balding, Teresa Whinery, Eleanor Leshner and Eric Womeldorff, "Fehr & Peers Memorandum: Estimated TNC Share of VMT in Six US Metropolitan Regions (Revision 1)" August 2019, <https://drive.google.com/file/d/1FIUskVkj9IsAnWJQ6kLhAhNoVLjfFdx3/view>

U.S.,³ compared to about 2% among private vehicle purchases.⁴ As transportation network companies (TNCs) like Uber and Lyft continue to expand and grow in popularity, we can expect to see an increase in vehicle miles traveled and, if left un-electrified, a rise in associated air pollution and greenhouse gases.

Electrifying ride-hailing services has the potential for multiple benefits:

- **Less pollution.** Transportation is the primary source of air and climate pollution in the Puget Sound region. According to the National Center for Sustainable Transportation, the popularity of ride-hailing vehicles is currently leading to an increase in greenhouse gas emissions.⁵
The pollution benefit of electrifying ride-hailing vehicles is estimated to be three times the impact of electrifying a privately owned vehicle.⁶ Electric vehicles create no on-road air pollution or greenhouse gases. In the Pacific Northwest, EVs' upstream emissions are very low due to the region's relatively clean power grid. Switching high-mileage vehicles powered by internal combustion engines (ICE) to electricity would reduce the region's contribution to global climate change and improve air quality in highly trafficked areas.
- **More money for drivers.** Electric vehicles significantly reduce ride-hailing drivers' main operating costs – fuel and maintenance – allowing for sizeable savings that can increase drivers' net income and pay for the greater upfront cost of an EV.
- **Increased public awareness of electric vehicles.** Using electrified ride-hailing services offers the opportunity for consumers to directly experience the benefits of electric vehicles. In fact, taking an all-electric Uber or Lyft ride may be many individuals' first encounter with electric transportation.
- **Increased connectivity to shared mobility hubs.** Placing fast chargers at transportation hubs with frequent transit service, as part of an effort to support the electrification of ride-hailing services, could be a powerful tool to help connect multiple modes of mobility and increase safety, equity, and sustainability within communities.

Despite the benefits, transitioning the ride-hailing industry to electric vehicles comes with considerable challenges, such as drivers' low awareness of EVs, lack of access to at-home overnight charging, the higher upfront cost of EVs compared to other vehicles used for ride-hailing, and the overall size of available EVs.

³ Peter Slowik, Lina Fedirko, and Nic Lutsey, "Assessing ride-hailing company commitments to electrification," ICCT: February 2019, https://theicct.org/sites/default/files/publications/EV_Ridehailing_Commitment_20190220.pdf

⁴ EV-Volumes.com, "USA Plug-in Sales for 2018 Full Year," <http://www.ev-volumes.com/country/usa/>

⁵ Caroline Rodier, "The Effects of Ride-Hailing Services on Greenhouse Gas Emissions," National Center for Sustainable Transportation: February 2019, <https://escholarship.org/uc/item/4vz52416>

⁶ Alan Jenn, "Emissions Benefits of Electric Vehicles in Uber and Lyft Services," National Center for Sustainable Transportation: August 2019: <https://escholarship.org/uc/item/15s1h1kn>

Research Review

Electrification Efforts by Ride-Hailing Service Companies

This section reports on what ride-hailing service companies are doing to encourage the use of EVs by their drivers – primarily Uber and Lyft since they are the two major TNCs in service in the Pacific Northwest.

Although fuel is the biggest operating cost for ride-hailing drivers, few drivers operate EVs (either battery-electric vehicles or plug-in hybrid vehicles). According to the International Council on Clean Transportation (ICCT), less than 1% of vehicles on the Uber and Lyft platforms in 2018 were electric.⁷

Currently, Uber and Lyft offer no company-wide incentives for drivers to go electric, although there are numerous programs to encourage EV adoption that are tailored to specific cities.

Lyft is integrating EVs into its rental platform in select cities, including Seattle. Their ‘Express Drive’ program gives drivers access to rental vehicles with subsidized rates based on the number of rides given on the platform per week. Lyft offers 100 Chevy Bolts, total, for Express Drive rental in Atlanta and Seattle.⁸ In our conversations with Lyft, they stated that they are not advertising or promoting the program since the vehicles are being fully utilized by their drivers and they have no plans to add more EVs to the program at this time.

In Seattle and Portland, Lyft’s ‘Green Mode’ allows passengers to hail a fuel-efficient vehicle. Green Mode vehicles can be conventional hybrid vehicles as well as electric vehicles. It is unclear whether this service actually benefits the drivers and thus encourages drivers to operate more fuel-efficient vehicles. Beginning in May 2019, Lyft partnered with Portland General Electric (PGE) to provide free charging at their charging stations.⁹

Uber implements EV-friendly programs in areas where government policy necessitates. In London, for example, Uber adds an extra 15 pence (\$0.19 USD) per mile fee under the company’s new Clean Air plan. The fee is then used to fund Uber drivers’ purchase of electric vehicles.¹⁰

In June 2018, Uber rolled out a new EV incentive program in select cities called the EV Champions Initiative.¹¹ The company’s sustainability lead, Adam Gromis, stated in a press release that the EV Champions Initiative is intended to address challenges presented by time lost to charging and improve access to affordable high-mileage EVs. There is no further information at this time about the success of this pilot program, offered in Austin, Los Angeles, Montreal, Pittsburgh, Sacramento, San Diego, San Francisco, and Seattle. According to Ridester, an information resource for rideshare users and drivers,

⁷ Peter Slowik, “Why Aren’t Uber and Lyft all-electric already?”, ICCT, March 22, 2019, <https://theicct.org/blog/staff/why-arent-uber-and-lyft-all-electric-already>

⁸ Interview with Lyft’s Sustainability Policy Manager, Jon Walker, July 23, 2019

⁹ “Lyft and PGE Bring Electric Vehicle Charging to Lyft Drivers,” Portland General Electric, May 23, 2019, <https://www.portlandgeneral.com/our-company/news-room/news-releases/2019/05-23-2019-lyft-and-pge-bring-electric-vehicle-charging-to-lyft-drivers>

¹⁰ Andrew J. Hawkins, “Uber adds a ‘clean air fee’ in London to help drivers upgrade to electric cars,” The Verge, January 14, 2019, <https://www.theverge.com/2019/1/14/18182216/uber-london-clean-air-fee-drivers-evs>

¹¹ “Electrifying our network,” Uber, June 20, 2018, <https://www.uber.com/newsroom/electrifying-our-network/>

any incentives are minimal – equal to \$1 per ride and maxing out at \$20 per week in San Diego and San Francisco.¹² Uber drivers in Sacramento are eligible to receive \$1.50 for every trip in a zero-emission vehicle, primarily paid for by the Sacramento Municipal Utility District and partially by Uber.¹³ In Los Angeles, instead of providing a financial incentive, the City will provide drivers with “educational assistance,” the details of which are not available.

By contrast, Lyft Lux, Lux Black and Lux Black XL programs allow drivers to earn more money by charging customers a premium for the service. The program also has a “commission refund” available as a promotion for a limited time in select cities. Tesla’s Model 3, S and X are included in this program.¹⁴

Electrification Efforts by State and Local Governments and Utilities

The purpose of this section is to provide an overview of existing and emerging policies of state and local governments and utilities that support the adoption of electric vehicles within ride-hailing companies. Government efforts such as supportive policies, regulations, rebates, and incentives help alleviate the barriers and gaps identified in the “Challenges” section of this report (charging, upfront cost of EVs, battery range, etc.). Actions are being taken at multiple levels of government including states, cities, and utilities, as well as investor-owned utilities.

Examples of current state and local government policies and utility incentives that support ride-hailing fleet electrification are shown in Table 1 below.

Table 1. Summary of policies and incentives for ride-hailing fleet electrification in U.S states and cities by state and local governments and utilities

Location	Action	Description
California	State Senate Bill 1014: Clean Miles Standard and Incentive Program ¹⁵	<p>In 2018, California became the first state to enact a law that will quantify, regulate, and reduce the emissions from transportation network companies (TNCs).</p> <p>The new law requires state regulators to establish the California Clean Miles Standard and Incentive Program to increase zero-emission vehicles (ZEVs) used by ride-sharing companies, such as Uber and Lyft.</p> <p>The program must set a baseline of GHGs from TNCs by 2020 and establish GHG reduction targets by 2021 which TNCs must meet by 2023.</p>

¹² “Earn More with Uber – Drive an Electric Car,” Ridester, June 25, 2018, <https://www.ridester.com/earn-uber-drive-electric-car/>

¹³ “Uber, SMUD paying Sacramento Uber Drivers to use electric vehicles,” Mayor’s Office of Civic Engagement, City of Sacramento, June 22, 2018, <https://engagesac.org/blog-civic-engagement/2018/6/22/uber-smud-paying-sacramento-uber-drivers-to-use-electric-vehicles>

¹⁴ “Elevate Your Earnings With Lyft Lux and Lyft Lux Black, and Lyft Lux Black XL,” Lyft, May 25, 2017, <https://thehub.lyft.com/blog/lux>

¹⁵ “Senate Bill 1014: Clean Miles Standard and Incentive Program: zero-emission vehicles,” California Legislative Information, September 14, 2018, https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1014

Columbus, Ohio	Smart Columbus’s ride-hailing rebates ¹⁶	Smart Columbus provided 40 \$3,000 rebates in 2018 and 2019 to central Ohio-based ride-hailing drivers or companies to make the switch to new all-electric vehicles. The program required TNC drivers to drive 10,000 miles for ride-hailing services before receiving the rebate. Ultimately, 37 rebates were used by a local taxi company and three rebates went to local TNC drivers.
Pittsburgh, Pennsylvania	Duquesne Light Company and Uber partnership ¹⁷	Duquesne Light Company is partnering with Uber to raise awareness of EVs with Uber drivers, install fast-charging stations, and potentially offer EV promotions with local car dealerships.
Portland, Oregon	Portland General Electric (PGE) and Lyft partnership ¹⁸	Lyft will purchase charging subscriptions from PGE’s Electric Avenue network and provide them to EV drivers for free.
Sacramento, California	Sacramento Municipal Utility District’s (SMUD) incentive for Uber drivers with an EV ¹⁹	During a year-long pilot project, SMUD is contributing \$1.25 per mile to Uber drivers who use electric vehicles in its territory. Uber is also contributing an additional \$0.25 to the EV drivers. SMUD pays for the incentive in-part with credit revenue from California’s Low Carbon Fuel Standard.
Washington D.C.	Emissions Reduction Plan for transportation network companies ²⁰	The District of Columbia requires private vehicle-for-hire companies to develop a GHG reduction plan by 2022 that includes strategies to increase the number of for-hire drivers with ZEVs and to increase the percentage of vehicle miles completed by ZEVs relative to total vehicle miles traveled.

Drivers

The Realities of Ride-Hailing

Lyft and Uber drivers do not make much – according to “The Street,” an online financial information resource, drivers make only \$8.55-\$11.77 per hour after expenses. As freelance workers, drivers do not

¹⁶ Interview with Andrew Conley, Smart Columbus, August 9, 2019

¹⁷ “Duquesne Light Company and Uber Announce Electric Vehicle Partnership,” Duquesne Light Co., February 28, 2018, <https://www.duquesnelight.com/company/about/newsroom/2018/duquesne-light-company-and-uber-announce-electric-vehicle-partnership>

¹⁸ “Lyft and PGE Bring Electric Vehicle Charging to Lyft Drivers,” Portland General Electric, May 23, 2019, <https://www.portlandgeneral.com/our-company/news-room/news-releases/2019/05-23-2019-lyft-and-pge-bring-electric-vehicle-charging-to-lyft-drivers>

¹⁹ “Uber, SMUD paying Sacramento Uber Drivers to use electric vehicles,” Mayor’s Office of Civic Engagement, City of Sacramento, June 22, 2018, <https://engagesac.org/blog-civic-engagement/2018/6/22/uber-smud-paying-sacramento-uber-drivers-to-use-electric-vehicles>

²⁰ U.S. Department of Energy, Alternative Fuels Data Center, [Accessed August 2019], <https://afdc.energy.gov/laws/12157>

qualify for employer benefits (including health care, sick leave, and vacation time) and assume the costs and risks of maintaining and operating their own vehicle.²¹ Drivers must also pay for their own commercial auto insurance since Uber and Lyft's insurance only covers driving time en route to a passenger pickup or with a passenger in the vehicle (not during driving while waiting for a ride request.)²²

In 2019, the National Labor Relations Board ruled that Uber drivers cannot form a union since they are independent contractors.²³ Since then, both companies have actively worked to exempt drivers from employment protections.²⁴

Through our interviews with local ride-hailing drivers, some explained they used to make more money driving taxis, but cannot make the same amount now with Uber and Lyft. Several said they are now in debt from purchasing a car for ride-hailing and would likely continue driving to pay off their loans.

A 2018 study of ride-hailing drivers in New York City shed some light on who commonly drives for Uber and Lyft. Although Seattle and New York City are obviously different demographically, anecdotal evidence suggests similar trends. The study, conducted by the Center on Wage and Employment Dynamics, highlighted the following results:²⁵

- 97% of drivers are male
- 90% of drivers are immigrants
- 60-65% of drivers work full time as drivers, without another job
- 80% acquired a car to earn a living by driving
- 17% have a bachelors degree or higher
- 26% of drivers provide 90-100% of their family's income

In short, ride-hailing drivers who work for Uber and Lyft must take on a large amount of risk and upfront costs with little to no assurances or benefits from the companies themselves. Drivers from immigrant communities may choose to work for Uber and Lyft because it's easy to join and start earning income, but they face challenges, such as acquiring a vehicle, finding fair financing, and navigating the insurance system, that make it difficult to pivot to other ventures more profitable than ride-hailing.

²¹ Eric Reed, "How Much Do Uber and Lyft Drivers Make in 2018?" *The Street*, December 11, 2018,

<https://www.thestreet.com/personal-finance/education/how-much-do-uber-lyft-drivers-make-14804869>

²² Scott Van Maldegiam, "Why Do I Need A Rideshare Insurance Policy," *The Rideshare Guy*, September 23, 2015,

<https://therideshareguy.com/why-do-i-need-a-rideshare-insurance-policy/>

²³ Vanessa Romo, "Uber Drivers Are Not Employees, National Labor Relations Board Rules," *NPR*, May 15, 2019,

<https://www.npr.org/2019/05/15/723768986/uber-drivers-are-not-employees-national-relations-board-rules-drivers-saw-it-com>

²⁴ Noam Scheiber, "Debate Over Uber and Lyft Drivers' Rights in California Has Split Labor," *The New York Times*, June 29, 2019,

<https://www.nytimes.com/2019/06/29/business/economy/uber-lyft-drivers-unions.html>

²⁵ James A. Parrot and Michael Reich, "An Earnings Standard for New York City's App-Based Drivers: Economic Analysis and Policy Assessment," *Center for New York City Affairs*: June 2018

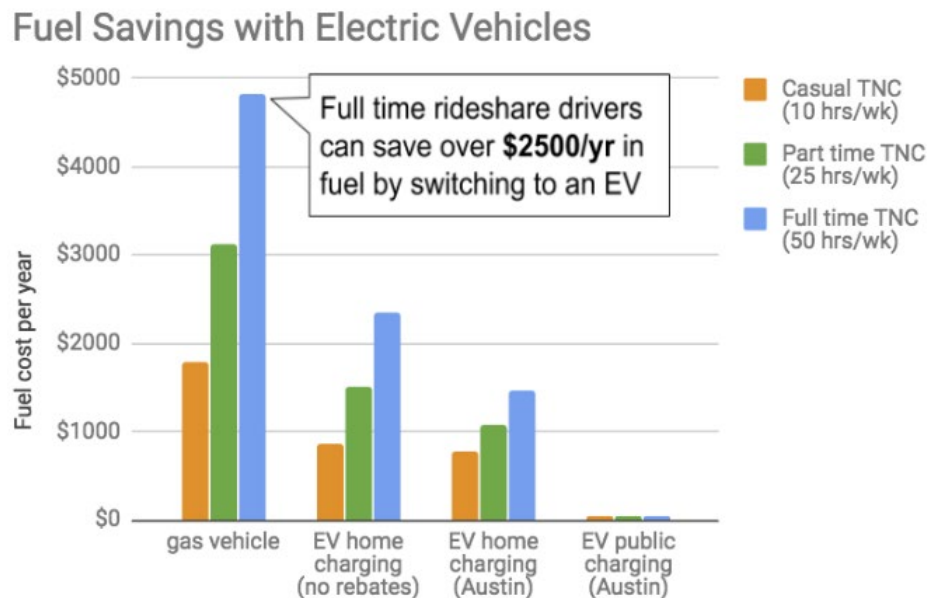
<https://static1.squarespace.com/static/53ee4f0be4b015b9c3690d84/t/5b3a3aaa0e2e72ca74079142/1530542764109/Parrott-Reich+NYC+App+Drivers+TLC+Jul+2018jul1.pdf>

Benefits of EVs for Ride-Hailing

Drivers for ride-hailing services have a lot to gain from driving electric, primarily by significantly lowering their fuel and maintenance costs. Through these savings, ride-hailing drivers can pay for the incremental cost of an EV much more quickly than a private vehicle owner because, on average, electric TNC vehicles cover 3-5 times more miles each year than private vehicles.

The potential cost savings of driving an electric vehicle, compared to a conventional internal combustion engine car, are substantial. According to the Rocky Mountain Institute, full-time ride-hailing drivers (50+ hours per week) can save over \$5,200 each year in fuel and maintenance costs by upgrading to an electric car from a gas car, as shown in Figure 1 and 2.²⁶ Since Washington's electricity rates are among the cheapest in the nation – approximately \$0.11 per kilowatt hour for the Seattle area²⁷ – full-time drivers in Seattle could save even more (approximately \$5,500) with an EV.²⁸

Figure 1. Fuel savings for ride-hailing drivers from switching to an electric vehicle – Rocky Mountain Institute

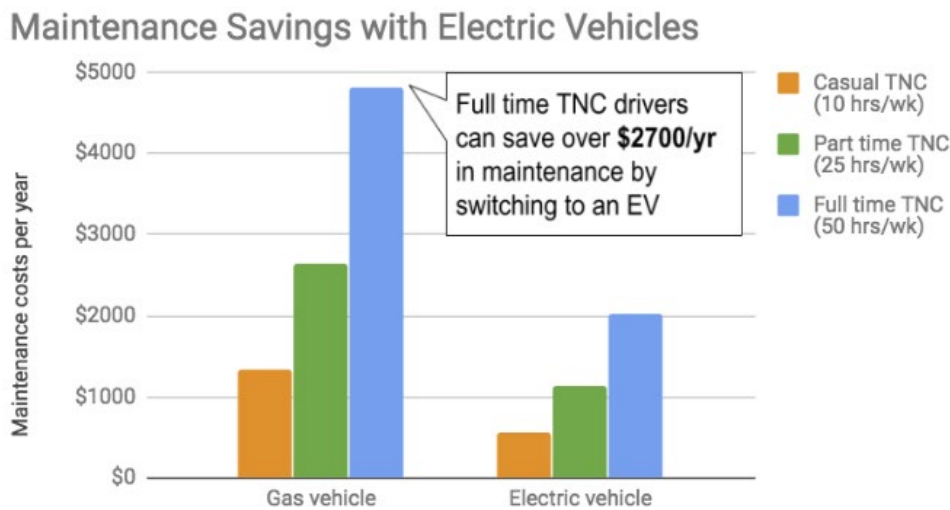


²⁶ Richard Li, Garret Fitzgerald, "Ride-Hailing Drivers Are Ideal Candidates for Electric Vehicles," Rocky Mountain Institute, March 29, 2018, <https://rmi.org/ride-hailing-drivers-ideal-candidates-electric-vehicles/>. The study assumed the average gas car's fuel efficiency was 25 miles per gallon, gas was \$2.50 per gallon, and electricity was \$0.125 per kilowatt hour. EV public charging in Austin, Texas, costs \$50 per year through Austin Energy.

²⁷ "Average Energy Prices, Seattle-Tacoma-Bellevue-July 2019," U.S. Bureau of Labor Statistics, [Accessed August 2019], https://www.bls.gov/regions/west/news-release/averageenergyprices_seattle.htm#targetText=Seattle%20area%20households%20paid%20an,per%20therm%20spent%20last%20year.

²⁸ Calculated using \$0.11 per kilowatt hour instead of \$0.125.

Figure 2. Maintenance savings for ride-hailing drivers from switching to an electric vehicle – Rocky Mountain Institute



Since they drive long distances, full-time ride-hailing drivers can expect fuel savings that accrue “at least twice as quickly” as for private EV owners, according to the International Council on Clean Transportation (ICCT).²⁹ But nearly all ride-hailing drivers can benefit financially from EVs. The Rocky Mountain Institute ultimately recommends drivers who are on the road for 20 hours or more per week, or those who own a car older than model year 2007, to make the switch to an EV.³⁰

A key point from the ICCT on ride-hailing electrification (see Figure 3) is the importance for drivers to have the ability to charge at home during off-hours, allowing them to fuel their car inexpensively and start the next day with a full battery. If a driver relies solely on charging from public fast chargers, which can cost \$0.30 per kilowatt hour, the payback for an EV will take much longer. An EV dependent on fast-charging is likely to have higher costs per mile as well as greater opportunity costs from time spent refueling than a gas or hybrid vehicle.

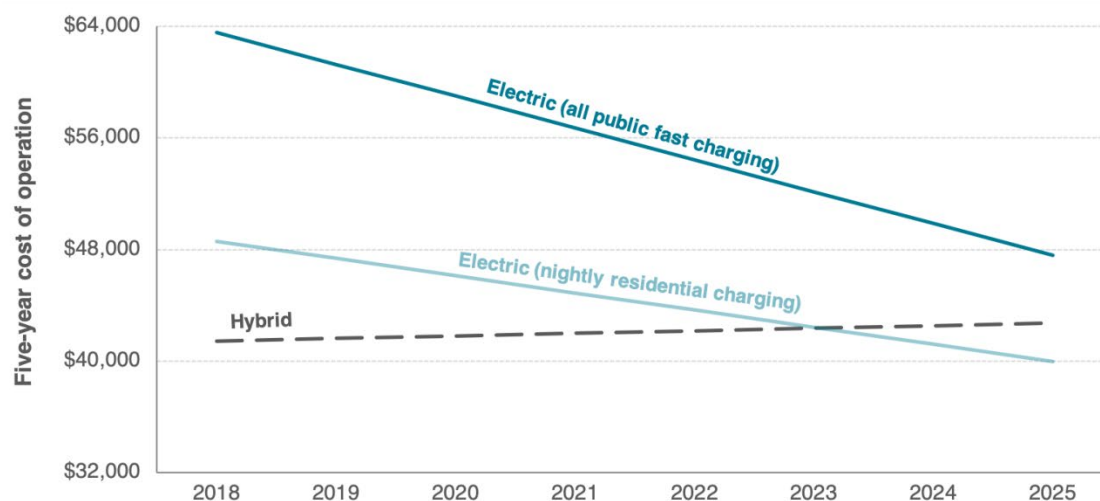
The ICCT predicts EVs with nightly at-home charging will reach total cost parity with hybrid vehicles (without tax incentives) by 2023, as shown by Figure 3. They note separately that EVs are already at cost parity with hybrids if including the EV federal tax credit of \$7,500.³¹ However, claiming the full value of the federal tax credit requires the owner to have a tax liability of at least that amount; the low wages of ride-hailing drivers means that many may not see the full benefit of that tax credit.

²⁹ Nikita Pavlenko, Peter Slowik, Nic Lutsey, “When does electrifying shared mobility make economic sense?” ICCT: January 2019, https://theicct.org/sites/default/files/publications/Electric_shared_mobility_20190114.pdf

³⁰ Richard Li, Garret Fitzgerald, “Ride-Hailing Drivers Are Ideal Candidates for Electric Vehicles,” Rocky Mountain Institute, March 29, 2018, <https://rmi.org/ride-hailing-drivers-ideal-candidates-electric-vehicles/>.

³¹ Peter Slowik, Nikita Pavlenko, and Nic Lutsey, “Emerging policy approaches to electrify ride-hailing in the United States,” ICCT: January 2019, https://theicct.org/sites/default/files/publications/EV_ridehailing_policy_approaches_20190108.pdf

Figure 3. Five-year cost of operation for electric and hybrid vehicles – ICCT



Aside from fuel and maintenance savings, there may be less tangible benefits of electrifying ride-hailing vehicles. Anecdotal evidence indicates ride-hailing drivers can make more money in tips by driving an EV.³² Passengers may ultimately appreciate and reward a clean, quick, high-tech, and nearly silent vehicle.³³ In fact, the perceptions of consumers who ride in an EV are overwhelmingly positive, often leading to deeper conversations around electric vehicles' benefits and capabilities during the ride itself.³⁴

According to Lyft, rides within its Green Mode program receive similar ratings to other rides despite the longer wait time for the rides, indicating that the value Green Mode passengers place on riding in a fuel-efficient vehicle offsets any disincentive to wait for such a vehicle.³⁵ If Lyft expands and promotes its Green Mode program, EV drivers could conceivably see greater demand than drivers with conventional gas cars, particularly in an environmentally conscious city like Seattle.

Driver Perspectives of EVs

In July 2019, the Puget Sound Clean Air Agency conducted initial outreach to ride-hailing drivers at Sea-Tac Airport and brought the Agency's own electric vehicle – a Chevy Bolt.

During conversations with drivers, several common themes were evident:

- **Most drivers are aware of electric vehicles, but are not familiar with how they work or their benefits to ride-hailing services.** Similar to awareness within the general public of EVs, drivers often confuse hybrid vehicles as EVs or still believe EVs require gasoline and/or oil.

³² Lauren Switzer, "The TNC Campaign Webinar," Forth & Lyft, <http://evsharedmobility.org/resource/the-tnc-campaign-webinar/>

³³ Gabe Ets-Hokin, "What Happens When You Drive a Chevy Bolt EV for Rideshare," The Rideshare Guy, February 15, 2019, <https://therideshareguy.com/driving-a-chevy-bolt-ev-for-rideshare/>

³⁴ Joe Cella, "Ride-Sharing with Electric Vehicles Brings Benefits to Drivers and Consumers," Great Plains Institute, January 17, 2019, <https://www.betterenergy.org/blog/ride-sharing-with-electric-vehicles-brings-benefits-to-drivers-and-consumers/>

³⁵ Interview with Lyft's Sustainability Policy Manager, Jon Walker, July 23, 2019

- **The wide majority of drivers do not understand how to “refuel” an electric vehicle.** Although many understand an EV must be plugged in to recharge, nearly all drivers were unaware of the three levels of charging, charging times, and cost of charging.
- **Despite misperceptions of electric vehicles, most drivers say they would drive an EV for ride-hailing.** Even before learning about the key benefits of EVs, many drivers expressed overwhelming positivity about electric vehicles. Several mentioned that ride-hailing will inevitably become all-electric.
- **Fuel savings was the main reason drivers expressed interest in electric vehicles.** Unsurprisingly, most drivers found the difference in cost between gas and electricity (and, to a lesser extent, maintenance savings with EVs) to be appealing. Some drivers also stated they appreciated that EVs were cleaner for the air and environment.
- **The two largest obstacles for drivers were a lack of overnight charging options and not enough available EV models,** particularly vehicles large enough to accommodate passengers and their luggage. Many drivers live in multi-family housing and therefore are unlikely to have access to reliable and inexpensive charging options. Furthermore, most drivers found the Agency’s Chevy Bolt to be too small – especially the trunk – to be able to comfortably fit passengers and their belongings for rides to and from the airport or cruise terminals.

Challenges for Ride-Hailing Electrification

This section discusses some of the most common barriers to electric vehicle adoption and how they may or may not apply to outreach efforts with ride-hailing drivers in the Seattle area.

Charging

Overall, it appears the lack of ready access to charging is the biggest obstacle ride-hailing drivers face when considering a switch to an electric vehicle.

A typical ride-hailing driver doesn’t have to think much about refueling their car. Ten to fifteen minutes at a gas station is all that’s needed before the driver is back on the road, ready for another ride.

Refueling an EV isn’t quite as easy. While public charging stations continue to be built in Washington, more fast chargers are needed in locations convenient for ride-hailing drivers. The ICCT recommends fast chargers be built near drivers’ homes, where they commonly take breaks, and close to popular destinations, such as airports.³⁶ And ride-hailing drivers need public-charging options more than a typical private EV owner.³⁷ As seen from the efforts to electrify taxis in Washington D.C., multiple,

³⁶ Peter Slowik, Lina Fedirko, and Nic Lutsey, “Assessing ride-hailing company commitments to electrification,” ICCT: February 2019, https://theicct.org/sites/default/files/publications/EV_Ridehailing_Commitment_20190220.pdf

³⁷ Conner Smith, “National Overview of TNC Electrification,” Atlas Public Policy: August 2019, <http://evsharedmobility.org/wp-content/uploads/2019/08/National-Overview-v1.0.pdf>

reliable, and relatively inexpensive public chargers are key to ensuring ride-hailing drivers successfully transition to EVs.³⁸

One of the major challenges of charging from a driver perspective is the opportunity cost of time spent waiting in line or refueling at a charger, which can add up quickly. The ICCT estimated a long-range EV (250+ miles) would require an average of one stop every five days to recharge, assuming they had access to overnight charging. They also estimated each stop would take about 45 minutes (assuming today's fast-charging technology), adding up to more than 40 hours per year spent charging compared to nearly 10 hours fueling a gas vehicle per year.³⁹ This 30+-hour difference equals valuable time drivers could use to provide rides and earn money.

Another barrier is the cost of public charging. Charging rates can vary and are often in addition to parking lot or garage access fees. Fast-charging rates in particular differ based on the charging company provider and their preferred pricing or membership model. The ICCT estimates fast-charging rates range from \$0.27 to \$0.49 per kilowatt hour, at least twice as high as their estimate for residential electricity rates (\$0.13 per kilowatt hour). In the end, ride-hailing drivers dependent on fast-charging to refuel their vehicle have 25% higher operating costs than those with overnight residential charging.⁴⁰ Ultimately, access to nightly residential charging is vital for ride-hailing drivers since it is much more cost-effective than relying solely on public fast-charging.⁴¹

However, a large number of ride-hailing drivers live in multi-family housing, limiting the opportunities for reliable at-home charging. Although building codes are starting to address "EV readiness," the vast majority of multi-family units in the Seattle area do not have charging stations.

Ultimately, future outreach to ride-hailing drivers will need to specifically target drivers with dependable at-home charging options (or the ability to secure charging in the near future) that allow them to refuel inexpensively, avoid high opportunity costs of public charging during the day, and leave home each day with a full battery.

Upfront Cost

Another significant challenge for ride-hailing drivers – also seen in the wider private vehicle market – is the higher upfront cost of electric vehicles. EVs, at least for now, commonly cost up to \$10,000 more than comparable gas cars.⁴² Although ride-hailing drivers are likely to recoup these additional costs much faster than a typical car buyer, paying more upfront puts a significant burden on drivers to find additional capital, often at already unfavorable lending rates.

³⁸ Maxine Joselow, "Long line, one charger and a 'disaster' for cabbies," E&E News, March 14, 2019, <https://www.eenews.net/climatewire/2019/03/14/stories/1060127241>

³⁹ Nikita Pavlenko, Peter Slowik, Nic Lutsey, "When does electrifying shared mobility make economic sense?" ICCT: January 2019, https://theicct.org/sites/default/files/publications/Electric_shared_mobility_20190114.pdf

⁴⁰ Nikita Pavlenko, Peter Slowik, Nic Lutsey, "When does electrifying shared mobility make economic sense?" ICCT: January 2019, https://theicct.org/sites/default/files/publications/Electric_shared_mobility_20190114.pdf

⁴¹ Peter Slowik, Lina Fedirko, and Nic Lutsey, "Assessing ride-hailing company commitments to electrification," ICCT: February 2019, https://theicct.org/sites/default/files/publications/EV_Ridehailing_Commitment_20190220.pdf

⁴² Peter Slowik, Nikita Pavlenko, and Nic Lutsey, "Emerging policy approaches to electrify ride-hailing in the United States," ICCT: January 2019, https://theicct.org/sites/default/files/publications/EV_ridehailing_policy_approaches_20190108.pdf

Drivers can take advantage of the federal tax credit for new electric vehicles. However, the tax credit only benefits taxpayers with at least \$7,500 in tax liability – something that lower-income earners may not fully trigger. EV buyers also must pay the entire upfront cost of the vehicle at the time of purchase (as opposed to a rebate) and can only receive the tax credit after they file their taxes the following year.

Furthermore, the tax credit for the Chevy Bolt – one of the few long-range EVs available in Washington in 2019 – is phasing out and will expire after March 2020, taking away a strong purchase incentive for a vehicle that is ideal in many ways for ride-hailing.

As of August 2019, in Washington State, the first \$25,000 of a new electric vehicle purchase or the first \$16,000 of a used electric vehicle purchase is exempt from state sales tax, reducing most all-electric and several plug-in hybrid vehicles' overall purchase price. At the same time, the state increased the annual registration fee for electric vehicles to \$225, the highest in the country.

Used EVs provide a cheaper alternative for ride-hailing drivers, but most inexpensive options on the used car market today do not have the battery range (150+ miles) or the size full-time ride-hailing drivers need to transport passengers and their belongings.

Future outreach will need to provide tools for drivers to quickly and easily calculate their total cost of ownership and payback period, as well as guidance on how to take advantage of federal and state tax incentives for EVs. Information on where to obtain fair financing will also be key to increasing EV adoption among ride-hailing drivers, whose credit history may or may not qualify them for market-rate loans.

Range

The first question from most ride-hailing drivers when they see an electric vehicle: how far can it go?

For drivers who depend on transporting their passengers safely and easily to their destination for a living, knowing how far a car can go is incredibly important.

Fortunately, long-range electric vehicles (200+ miles) should cover the driving needs of most ride-hailing drivers. On average, ride-hailing drivers travel 136 miles per day, according to the Rocky Mountain Institute.⁴³ In Austin, only 10% of Chevrolet Bolt drivers went farther than the Bolt's 238-mile range per day.⁴⁴ The ICCT estimates that a long-range EV fully-charged overnight would cover 95% of a full-time ride-hailing driver's daily miles and 99% of a part-time driver's daily miles.⁴⁵

The National Center for Sustainable Transportation agrees, saying that “range limitations are not an issue: there is no distinguishable difference between gas and electric cars driving for TNCs.”⁴⁶

⁴³ Richard Li, Garret Fitzgerald, “Ride-Hailing Drivers Are Ideal Candidates for Electric Vehicles,” Rocky Mountain Institute, March 29, 2018, <https://rmi.org/ride-hailing-drivers-ideal-candidates-electric-vehicles/>

⁴⁴ Peter Slowik, Nikita Pavlenko, and Nic Lutsey, “Emerging policy approaches to electrify ride-hailing in the United States,” ICCT: January 2019, https://theicct.org/sites/default/files/publications/EV_ridehailing_policy_approaches_20190108.pdf

⁴⁵ Nikita Pavlenko, Peter Slowik, Nic Lutsey, “When does electrifying shared mobility make economic sense?” ICCT: January 2019, https://theicct.org/sites/default/files/publications/Electric_shared_mobility_20190114.pdf

⁴⁶ Alan Jenn, “Emissions Benefits of Electric Vehicles in Uber and Lyft Services,” National Center for Sustainable Transportation: August 2019: <https://escholarship.org/uc/item/15s1h1kn>

Future outreach to ride-hailing drivers should strongly convey that long-range EVs will cover the majority of full-time ride-hailing mileage requirements and provide information on the available EV models most suited for ride-hailing services.

Available EV Models

More carmakers are releasing new electric vehicle models, but the variety of EV models remains limited, especially in states like Washington without a zero-emission vehicle standard.

Additionally, most affordable EVs are smaller vehicles with less trunk space than popular ride-hailing vehicles, such as the Toyota Prius. Although larger EV options are expected soon, such as the Kia Niro or Hyundai Kona, their availability is currently limited at Washington dealerships.

Outreach efforts to ride-hailing drivers should highlight EVs large enough for ride-hailing as they come to market in the Seattle area. Outreach materials also could provide information on each EV's interior dimensions, particularly trunk space, and how those dimensions compare to more-traditional vehicles owned by ride-hailing drivers.

Comparison with Hybrids

Many ride-hailing drivers in the Seattle area choose to drive hybrid vehicles because of the fuel savings and Sea-Tac Airport's fuel efficiency requirement for ride-hailing vehicles picking up passengers (45 miles per gallon for Uber, 40 mpg for Lyft).

Due to their quick refueling times and lower purchase price, hybrid vehicles, for now, may make more sense financially than electric vehicles for ride-hailing drivers. An analysis by the ICCT of the five-year total cost of operation per mile for ride-hailing vehicles found that hybrids (\$0.21 per mile) currently cost less to operate than EVs with a 250-mile range (\$0.25 per mile) or a 200-mile range (\$0.26 per mile). The analysis did not take into account other factors, such as federal or state tax incentives or the inexpensiveness of Washington's electricity rates, but did include the opportunity costs of charging. Eventually, EVs will be the clear choice for ride-hailing drivers, even without incentives. The ICCT anticipates the operations costs of EVs will decrease by 18-20 percent through 2025.⁴⁷

Future outreach should highlight EV incentives from federal, state, and local governments and utilities, to make the business case for transitioning to an electric vehicle and compare with popular hybrid vehicle models. Conversations with drivers should also identify other policy levers that could reward drivers with EVs instead of hybrids and accelerate electrification. Additionally, as mentioned earlier, outreach will primarily focus on drivers with access to inexpensive at-home charging due to the potential for lower operations costs.

Awareness of EVs

Ride-hailing drivers appear to be as knowledgeable about electric vehicles as the general public. According to a survey by AAA, most Americans do not understand the advantages of EVs or the variety

⁴⁷ Nikita Pavlenko, Peter Slowik, Nic Lutsey, "When does electrifying shared mobility make economic sense?" ICCT: January 2019, https://theicct.org/sites/default/files/publications/Electric_shared_mobility_20190114.pdf

of EV models currently available.⁴⁸ Similarly, ride-hailing drivers are unfamiliar with how EVs may help them save money, how they charge, or which EV models may be useful for ride-hailing. Many have heard of or seen luxury electric cars, such as Teslas, but have little knowledge of more affordable EVs.

Despite their lack of familiarity, ride-hailing drivers seem to be receptive to learning about EVs, particularly the financial benefits of driving electric. Other useful information ride-hailing drivers requested during our initial outreach included tax incentives, public charging locations, programs by ride-hailing companies to encourage electrification, and low-interest financing options.

Recommendations

This section outlines recommended driver engagement strategies based on the research presented in this report, as a deliverable for this project's Task 1. Tasks 2 and 3 will be accomplished by implementing a combination of the following outreach strategies, as agreed upon by project partners and confirmed with the Project Manager (SDOT).

This section also provides recommendations for action – possibly in concert with this outreach project – to increase the likelihood of EV adoption by ride-hailing drivers in Seattle.

Outreach

To increase ride-hailing drivers' awareness of electric vehicles within the Seattle-area, and after reviewing previous reports and studies on ride-hailing electrification as well as conversations with current ride-hailing drivers, we recommend a multi-faceted outreach approach.

Outreach will largely target ride-hailing drivers who have access to low-cost overnight charging and/or those who drive full-time for ride-hailing services as these are the stakeholders who stand to benefit the most from operating an EV.

In-person driver engagement

Although many ride-hailing drivers have heard of electric vehicles, most either do not understand the differences between an EV and a hybrid or are unaware of the benefits, availability, or current incentives for EVs. Breaking down these misconceptions, as well as educating drivers on the cost savings of operating EVs, requires direct engagement with the drivers.

In-person outreach will take place at locations where ride-hailing drivers frequently gather: Uber and Lyft's hubs, safety inspection sites, airport waiting lots, and other sites as they become evident. We also recommend holding at least one ride-and-drive event specifically geared for ride-hailing drivers so they can experience firsthand multiple available EV models.

⁴⁸ Ellen Edmonds, "Why Aren't Americans Plugging in to Electric Vehicles?" AAA, May 9, 2019, <https://newsroom.aaa.com/2019/05/why-arent-americans-plugging-in-to-electric-vehicles/>

EV ambassadors

Although few ride-hailing drivers currently own or operate an EV in the Seattle area, some do exist. This project will recruit current EV ride-hailing drivers to:

- Learn how they are benefitting from driving electric, such as cost savings
- Identify specific challenges that ride-hailing drivers with EVs face
- Understand how they can engage fellow ride-hailing drivers via case studies or in-person outreach, and what incentives might be needed to facilitate that engagement

Peer-to-peer outreach can be powerful. Tapping into this form of word-of-mouth engagement may help increase EV awareness by directly demonstrating how drivers can transition to an electric vehicle and providing a “business case” that other Seattle drivers can emulate.

Additionally, we will explore opportunities to pay “EV Ambassadors” for their time and expertise.

Direct driver messaging

Another way this project will reach ride-hailing drivers is through direct messaging. Cooperation from Uber and Lyft will make this strategy much more effective.

We will develop an email listserv of drivers interested in more information from our in-person outreach events. Messaging will be distributed through Uber, Lyft, Drive Forward, and other driver forums, and be maintained on a new page on the Agency’s website. Messaging will center on the following themes:

- The basics of EVs, such as charging
- Cost savings and return on investment from EVs
- Tax incentives
- New EV models available
- Low-interest financing
- End-of-year vehicle purchasing – ride-hailing drivers must keep their vehicles up-to-date with Uber and Lyft’s requirements (less than 10 years old) and some will be considering a new vehicle at the end of each year.
- 1-on-1 guidance available

1-on-1 guidance

This project will follow-up by phone or email with drivers who express interest in purchasing an EV and provide personal guidance, including talking through:

- Costs – upfront, charging equipment, tax incentives, financing
- Total cost of ownership
- How to charge an EV
- Connecting drivers with EV Ambassadors

Actions to Electrify Ride-Hailing

As we work to increase awareness of EVs with drivers, there are multiple actions that can accelerate the electrification of the ride-hailing industry.

The following are policies or programs that decrease the cost of entry to electric vehicles for ride-hailing drivers or encourage utilization of EVs for ride-hailing. We recommend the City of Seattle encourage ride-hailing companies like Uber and Lyft to:

- Create promotions or incentives for drivers with all-electric vehicles, similar to Uber and Lyft's premium or luxury services.
- Develop EV-friendly features for drivers, such as allowing EV drivers to indicate their current battery range before accepting a trip request or matching EV drivers with trips that end near charging stations.
- Provide more EV options within the companies' short-term leasing fleet and promote these options with drivers.
- Advocate to carmakers for electric vehicles purposefully built for ride-hailing services.
- Facilitate electric vehicle "group buy" opportunities for drivers so they can purchase EVs at a lower price, possibly even vehicles not currently available in Washington.
- Partner and coordinate with cities and utilities to:
 - Strategically place fast-charging stations close to shared mobility hubs
 - Develop programs for low-cost fast-charging for ride-hailing drivers (such as in Austin, TX, and Portland, OR).

We encourage the City of Seattle and Seattle City Light to:

- Set standards requiring ride-hailing companies to electrify their fleet.
- Exempt electric vehicles if applying a fee structure or volume cap to ride-hailing services.
- Encourage ride-hailing drivers to transition to electric vehicles by:
 - Providing rebates to ride-hailing drivers who switch to an EV with clear requirements for ride-hailing mileage.
 - Offering incentives for electric vehicle ride-hailing miles.
 - Setting monthly flat rates or low-cost access to fast-charging.
- Explore opportunities to provide fast-charging at locations convenient for ride-hailing drivers, such as airports or entertainment venues.
- Install overnight charging options near multi-unit dwellings where drivers live, such as housing developments owned or operated by the City.
- Establish partnerships with credit unions or other fair-financing entities for low-interest loans to ride-hailing drivers.