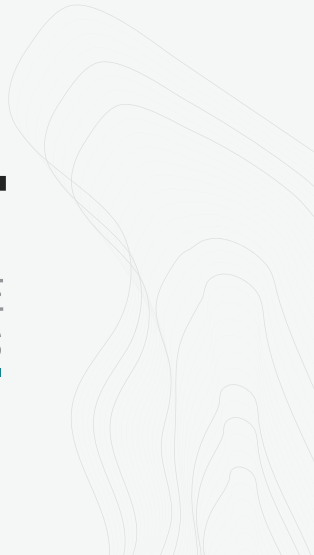


POWER PIVOT

TRANSITIONING **HAWAII** GASOLINE SUPERUSERS TO **ELECTRIC VEHICLES**



POWER PIVOT: TRANSITIONING HAWAI'I GASOLINE SUPERUSERS TO ELECTRIC VEHICLES



Acknowledgements

[Coltura](#) is a national non-profit dedicated to advancing policies that cut gasoline use at the speed and scale necessary for our climate change crisis.

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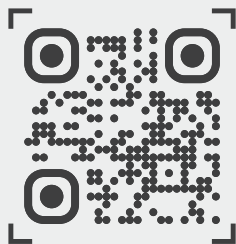
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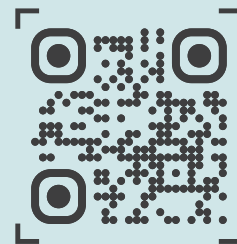
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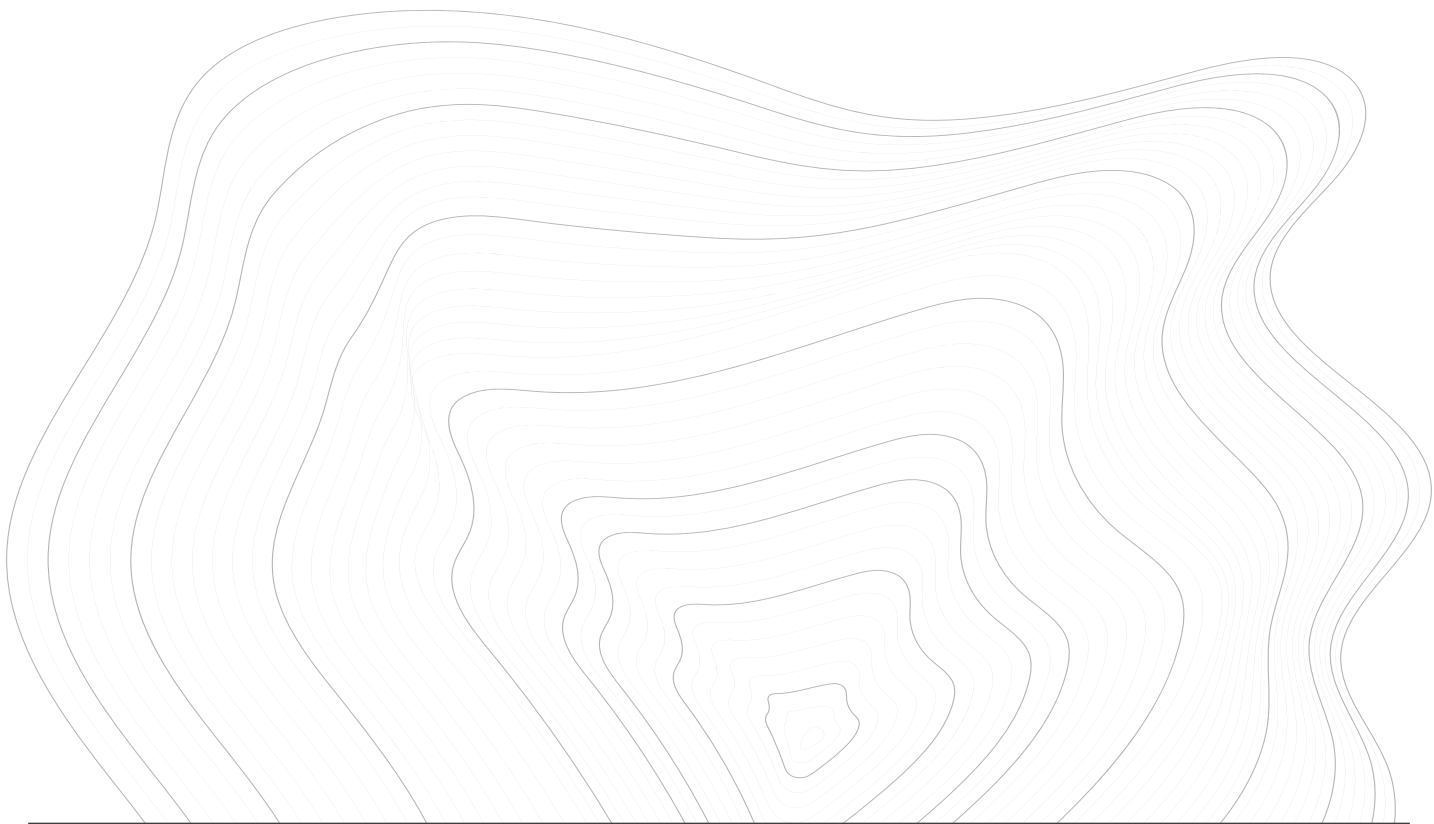


TABLE OF CONTENTS



<u>01</u>	<u>02</u>	<u>03</u>	<u>04</u>	<u>05</u>	<u>06</u>	<u>07</u>
Executive Summary — pg. 1	Introduction — pg. 1	Who Are Hawai'i's Superusers? — pg. 3	What Do Hawai'i's Superusers Have in Common? — pg. 7	How Does Transitioning Superusers to EVs Help All Hawai'i Residents? — pg. 13	Conclusion — pg. 15	Appendices — pg. 18

**01.**

EXECUTIVE SUMMARY¹

Hawai'i's annual consumption of more than 450 million gallons of gasoline challenges its ability to meet its climate and energy independence goals. Reducing Hawai'i's gasoline consumption faster and more equitably can be accomplished by focusing on its "Gasoline Superusers," the estimated 65,000 highest-consumption drivers who consume 25.9 percent of the state's gasoline. This report uses newly available data and methodology to describe Hawai'i's Superusers and the impacts that their transition to electric vehicles (EVs) can have on their personal finances and on Hawai'i's economy and environment. The findings and recommendations in this report offer a roadmap for policymakers, stakeholders, and communities to make more and faster progress toward a sustainable and resilient transportation system consistent with Hawai'i's climate goals.

¹ Detailed citations are in the body of the report and in Appendix A.

a. Findings regarding Hawai'i's Superusers:**Gasoline consumption**

- + Gasoline Superusers are defined as the drivers in the top 10 percent of U.S. gasoline consumption. They each consume at least 1,270 gallons of gasoline annually. About 6.8 percent of Hawai'i drivers (approximately 65,000 people) are Superusers, and they consume 25.9 percent of the state's gasoline. Superusers consume 5 times more gasoline per capita than other drivers.
- + On average, Hawai'i Superusers consume 1,840 gallons of gasoline and drive more than 40,000 miles annually, as compared to 380 gallons and 8,500 miles for Hawai'i non-Superusers.
- + Hawai'i Superusers consume 117 million gallons of gasoline annually, generating the same carbon emissions as powering over 400,000 homes – more than all the homes on O'ahu.

**Economic burden of high gasoline use**

- + Hawai'i Superusers spend on average \$8,700 per year on gasoline, versus \$1,800 for non-Superusers. Households in Hawai'i with at least one Superuser spend, on average, \$13,700 annually on gasoline, accounting for 14 percent of household income, compared to \$4,300 annually and 5 percent of income for households without a Superuser.

**Hawai'i Superusers' geographic and demographic profile**

- + Hawai'i Superusers are disproportionately rural.
- + Native Hawaiians and Pacific Islanders, as well as Asian and Hispanic drivers, are overrepresented amongst Superusers, while White drivers are under-represented.



Hawai'i Superusers' vehicle preferences and usage patterns

- + The most popular vehicles for Hawai'i Superusers are the Honda Odyssey, Nissan Frontier, Honda Accord, Honda CRV, and Toyota Tacoma.
- + Hawai'i Superusers drive an average of 111 miles per day, compared to non-Superusers, who drive an average of 23 miles per day.



Economic and environmental benefits for Hawai'i Superusers switching to EVs

- + The average Superuser household in Hawai'i could save \$5,300 annually on fuel alone (gasoline savings minus electricity costs) by switching to an EV – up to a 38 percent savings from their current cost to fuel their vehicle. They would also reduce their emissions by 10.8 metric tons of carbon dioxide (CO₂) annually.
- + If all Hawai'i Superusers collectively switched to EVs, collectively, they would save more than \$220 million per year on fuel and displace more than 680,000 metric tons of CO₂ or almost 4 percent of Hawai'i's carbon emissions – more than the entire commercial sector's carbon emissions.

b. Policy Recommendations



- + Provide information tailored to Superusers regarding EV cost savings and charging.
- + Integrate learnings about Superusers into existing programs and approaches leveraging Hawai'i's organizations and partners in the EV transition.
- + Develop new incentive programs for Superusers and Superuser communities – such measures would lower the barriers to entry for those who stand to benefit the most from transitioning to EVs.



02.

INTRODUCTION

Hawaii's residents consume 450 million gallons of gasoline annually in their light-duty vehicles², more than 53,000 tanker trucks worth of gasoline, causing carbon emissions equivalent to powering 1,046,000 Hawaii homes.³

Hawaii needs to accelerate efforts to reduce carbon emissions faster than its present trajectory to meet its targets of a 50 percent reduction in emissions from 2005 levels by 2030, and net-negative carbon emissions by 2045. Gasoline consumption by light-duty vehicles accounts for almost 23 percent of the state's total carbon emissions and 40 percent of transportation emissions⁵, highlighting the need for a strategic reduction in gasoline usage to meet these climate goals and improve Hawaii's energy independence.

² Coltura Census-Level Gasoline Model.

³ Adapted and estimated from EPA's Greenhouse Gas Equivalencies Calculator. (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>) using Hawaii-based metrics from Hawaiian Electric (<https://www.hawaiianelectric.com/about-us/performance-scorecards-and-metrics/affordability>).

⁴ <https://energy.hawaii.gov/what-we-do/clean-energy-vision/decarbonization-strategy/>.

⁵ Calculated using an estimate of carbon emissions from gasoline from the Coltura Census-Level Gasoline Model and 2021 transportation/overall carbon emission from:

- <https://www.eia.gov/environment/emissions/state/>
- https://www.eia.gov/environment/emissions/co2_vol_mass.php
- https://www.eia.gov/state/seds/sep_fuel/html/fuel_mg.html

Note that this number may differ from related datasets due to different methodologies and years, such as the Hawaii Pathways to Decarbonization Final Act 238 report (<https://energy.hawaii.gov/what-we-do/clean-energy-vision/decarbonization-strategy/>) and the Hawaii Greenhouse Gas Emissions Inventory for 2020 and 2021. (<https://health.hawaii.gov/cab/hawaii-greenhouse-gas-program/>).

One strategic approach in the emissions reduction challenge is transitioning Hawai'i's Gasoline "Superusers" – people burdened with disproportionately large gasoline consumption – to EVs.

Coltura developed a methodology that helps identify who these Superusers are and how they travel. First, consumer-level gasoline consumption was estimated as follows. We used Global Positioning System (GPS) tracking data provided by Replica⁶, in combination with census and other data sets, to create statistics regarding the trips of statistically representative "synthetic" persons at a census block group level. We then combined the Replica data with a commercially available vehicle dataset that provides comprehensive demographic, vehicle, and mileage data concerning more than 100 million American households to assign estimated gasoline consumption to each household based on their estimated trips and the vehicles they own.

Second, a representative sample of 2,000 Hawai'i drivers and vehicles was created to understand more about Superusers in Hawai'i. This representative sample weights distributions of demographic factors according to the distributions of these variables in the U.S. Census. Using a proprietary database containing odometer readings on roughly half of vehicles in operation, the gasoline consumption of the drivers in the sample was calculated by dividing the annualized miles that their vehicle traveled based on their odometer readings by their vehicle's miles per gallon (MPG) rating.⁷

This report analyzes the demographics, driving habits, and financial pressures of these Superusers. It also outlines how the state and counties can use this data to help develop new EV policies and programs that help Superusers transition to EVs, thus achieving higher emissions reductions with fewer total EVs and reducing the heavy burden of high fuel expenses on the lower and moderate-income families that mostly comprise the Superuser group.

⁶ <https://www.replicahq.com/>.

⁷ Coltura's 2021 report, "Gasoline Superusers," estimated gasoline consumption in all states based on the 2017 National Household Travel Survey. That report found that 7% of Hawai'i's drivers are Gasoline Superusers, and that those drivers use 22% of the state's gasoline.



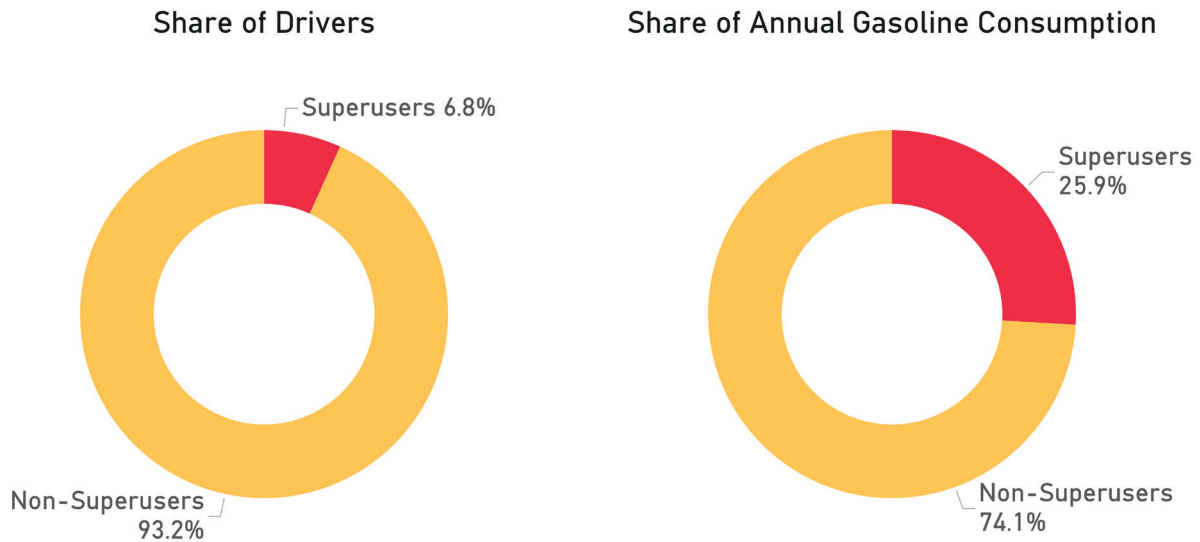
03.

WHO ARE HAWAII'S SUPERUSERS?

Superusers are those drivers in the top 10 percent of U.S. gasoline consumption, consuming at least 1,270 gallons of gasoline annually. In Hawaii, there are about 65,000 Superusers⁸. This group makes up 6.8 percent of the state's drivers but collectively burns 25.9 percent of the state's gasoline.

⁸ Coltura Census-Level Gasoline Model.

Superusers Consume a Disproportionate Share of Hawai'i Gasoline



Distribution of drivers (left) and gasoline consumption (right) of Hawai'i Superusers and non-Superusers. Source: Coltura Census-Level Gasoline Model.

Collectively, Hawai'i Superusers consume more than 117 million gallons of gasoline annually⁹, enough to power over 400,000 homes – more than all the homes on O'ahu.^{10, 11} On average, Hawai'i Superusers consume 1,840 gallons of gasoline per year, as compared to 380 gallons per year for non-Superusers, meaning Hawai'i Superusers consume almost 5 times as much per capita as non-Superusers.¹² The CO₂ emissions from one average Hawai'i Superuser's annual gasoline consumption are equivalent to the annual electricity-based emissions for about six Hawai'i homes.¹³

⁶ <https://www.replicahq.com/>.

⁷ Coltura's 2021 report, "Gasoline Superusers," estimated gasoline consumption in all states based on the 2017 National Household Travel Survey. That report found that 7% of Hawai'i's drivers are Gasoline Superusers, and that those drivers use 22% of the state's gasoline.

⁸ Coltura Census-Level Gasoline Model.

⁹ Coltura Census-Level Gasoline Model.

¹⁰ Adapted and estimated from EPA's Greenhouse Gas Equivalencies Calculator. (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>) using Hawai'i-based metrics from Hawaiian Electric (<https://www.hawaiianelectric.com/about-us/performance-scorecards-and-metrics/affordability>).

¹¹ <https://uhero.hawaii.edu/wp-content/uploads/2023/06/TheHawaiiHousingFactbook.pdf>.

¹² Coltura Census-Level Gasoline Model.

¹³ Adapted and estimated from EPA's Greenhouse Gas Equivalencies Calculator (<https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator>) using Hawai'i-based metrics from Hawaiian Electric (<https://www.hawaiianelectric.com/about-us/performance-scorecards-and-metrics/affordability>).

The primary factor causing high gasoline consumption is high vehicle miles traveled (VMT). Hawai'i's Superusers drive more than 40,000 miles per year on average, compared to non-Superusers, who drive approximately 8,500.¹⁴ Superusers make many daily trips, often of lengthy distances. Hawai'i Superusers take an average of 5 trips on weekdays and 4 on weekends, compared to 2.8 and 2.6 trips for non-Superusers.¹⁵ Hawai'i Superusers' average trip distance is 21 miles, compared to 7.4 miles for non-Superusers. Hawai'i Superusers drive 111 miles per day on average, compared to 23 miles for other drivers — almost 5 times as much.¹⁷



Janelle Glorioso, an Instacart driver living in Mountain View, Hawai'i County, often drives her 2009 Toyota Corolla XRS more than 200 miles a day between Hilo and Kona making Instacart grocery deliveries.

"I've had my vehicle for a month and a half, and I put on 4,000 miles already. I will drive approximately 5 miles to get to my stores I need to go shopping at. And then I'll drive averaging between 15 and 30 miles from the store over to where I need to deliver my items at. And then, basically, I'll just drive, you know, another 30 miles back to Hilo. I spend way too much on gas, and it seems like the gas burns and it burns and it burns... It seems like every 2 to 3 days I'm putting \$60 towards gas."



¹⁴ Coltura Census-Level Gasoline Model.

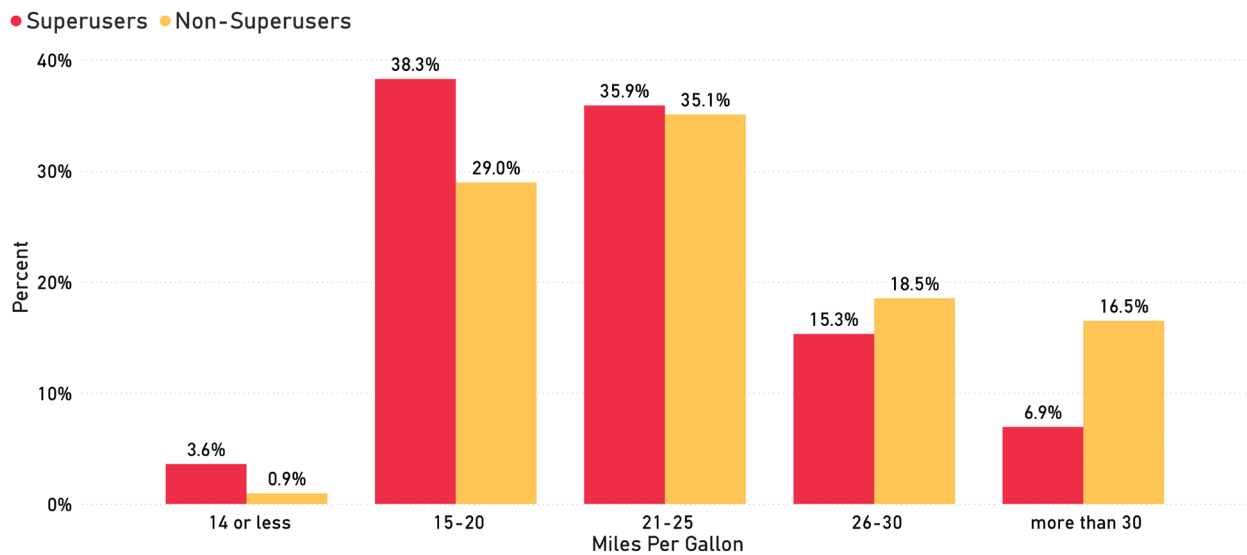
¹⁵ Coltura Census-Level Gasoline Model.

¹⁶ Coltura Census-Level Gasoline Model.

¹⁷ Coltura Census-Level Gasoline Model.

Low fuel efficiency of vehicles also drives high fuel consumption. The average MPG for Hawai'i Superusers' vehicles is 21.2, compared to 23.9 for non-Superusers.¹⁸ Many of the most popular vehicles driven by Hawai'i's Superusers are low-MPG trucks and SUVs (later detailed in the table on page 13).

Hawai'i Superusers Tend to Drive Low-Efficiency Vehicles



Distribution of Hawai'i Superuser and non-Superuser vehicles by MPG. Source: Coltura Representative Sample.

¹⁸ Coltura Representative Sample.

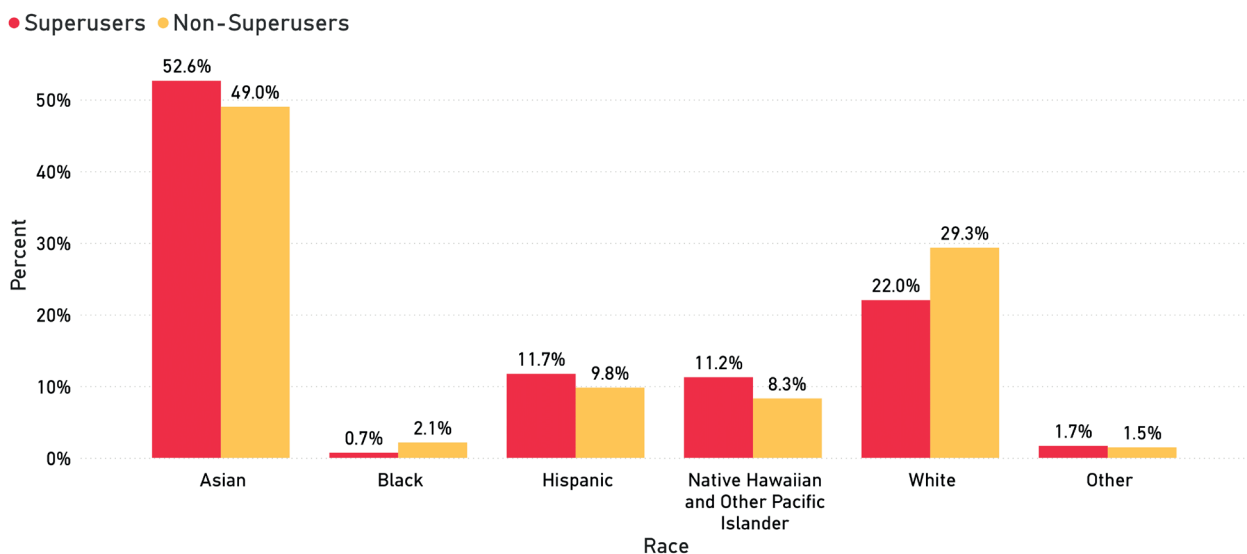




WHAT DO HAWAII'S SUPERUSERS HAVE IN COMMON?

Hawaii's Superusers are a heterogeneous group, though with some commonalities such as ethnic group, incomes, and vehicle choice. Native Hawaiians and Pacific Islanders, as well as Asian and Hispanic drivers, are overrepresented among Superusers in Hawaii, while White drivers are under-represented.

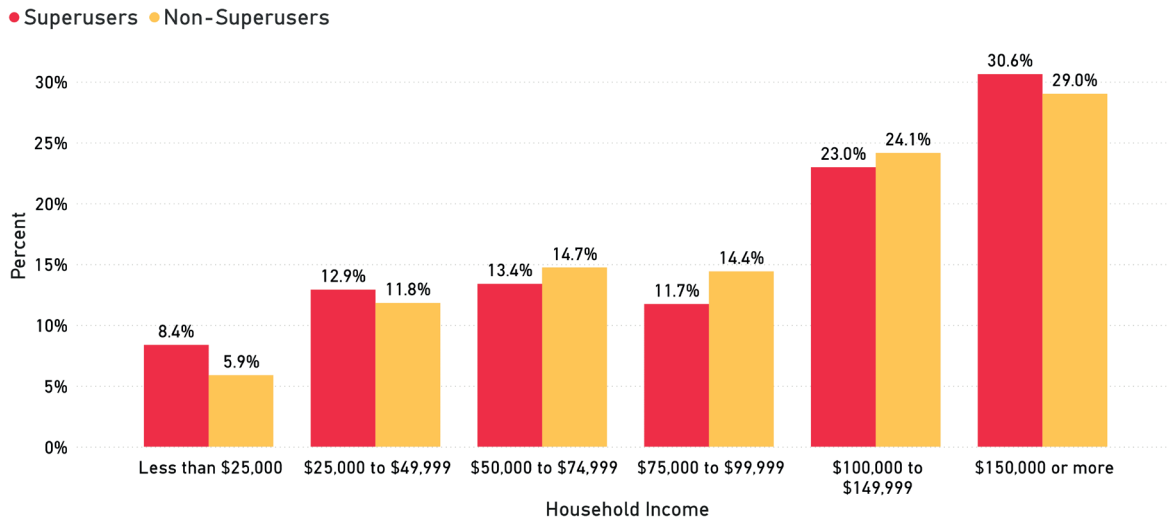
Share of Superusers and Non-Superusers in Hawaii by Race



Distribution of Superusers and non-Superusers in Hawaii by race. Source: Coltura Representative Sample.

The distribution of income among Superusers in Hawai'i is fairly close to that of non-Superusers; however, Superusers are overrepresented in the two lowest income brackets as well as the highest. One possible explanation is that people in the middle brackets with high gasoline costs may have a greater ability to purchase more fuel-efficient vehicles, and those in the highest brackets are relatively indifferent to high fuel expenditures or may not experience the same financial burden from higher prices.

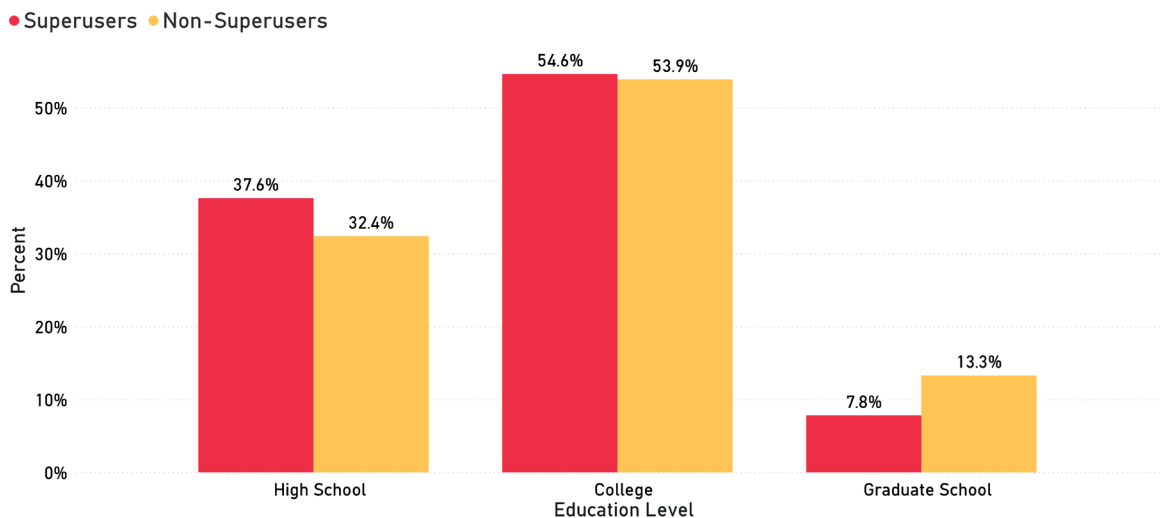
Share of Superusers and Non-Superusers in Hawai'i by Income



Distribution of Superusers and non-Superusers in Hawai'i by income. Source: Coltura Representative Sample.

Superusers in Hawai'i are more likely to have a high school or college education, while drivers with graduate-level education are disproportionately non-superusers.

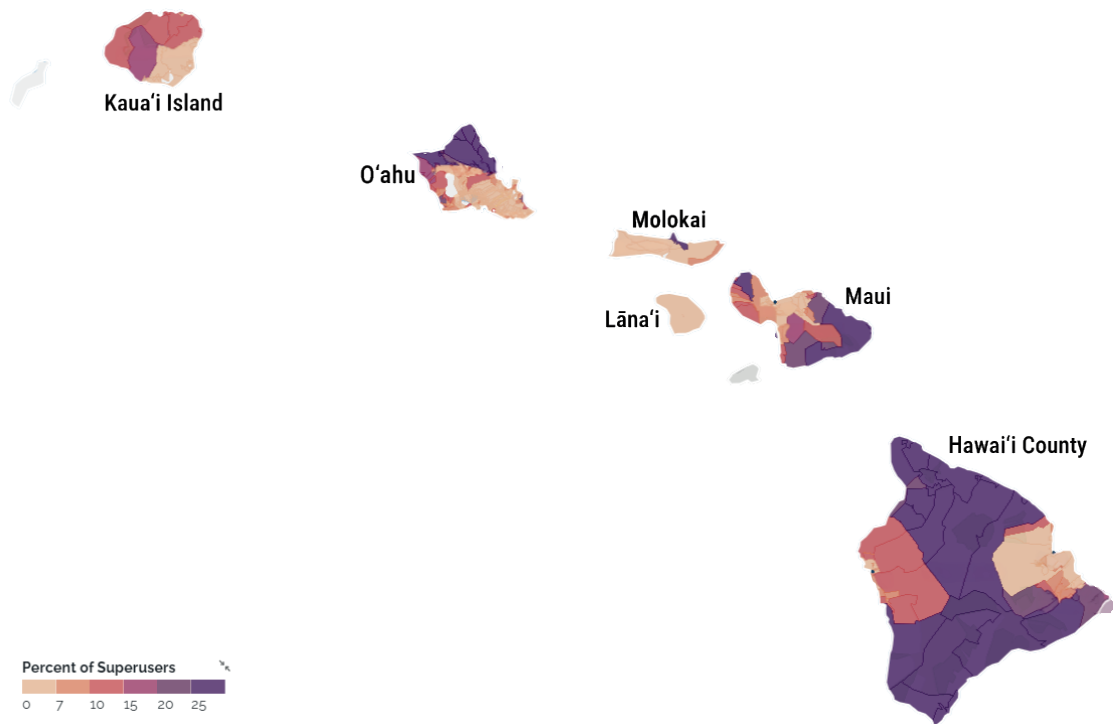
Share of Superusers and Non-Superusers in Hawai'i by Education Level



Distribution of Superusers and non-Superusers in Hawai'i by education level. Source: Coltura Representative Sample.

Many Hawaii Superusers live in more rural and remote areas, particularly in Hawaii County, where distances to basic services can be far and public transportation is less feasible. Detailed county level maps are in Appendix C.

Hawaii Superusers by Census Block Group



State of Hawaii, with the percent of Superusers in each census block group indicated by color. Source: Coltura Census-Level Gasoline Model.

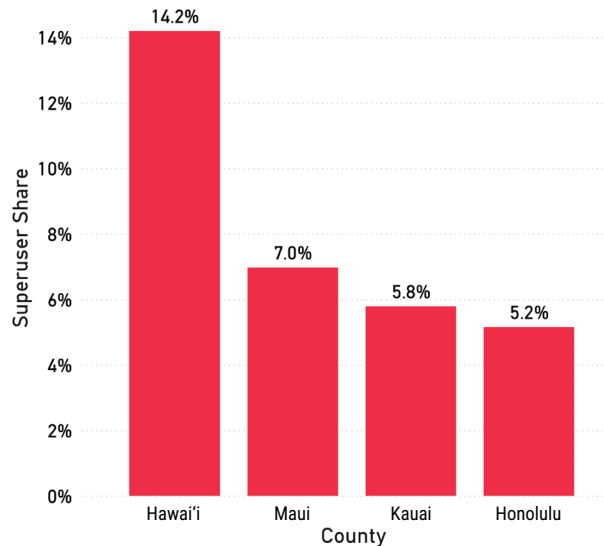
The relatively urban City and County of Honolulu, consisting of the entire island of O’ahu, has a low concentration of Superusers (5.2 percent), despite having a high overall number of Superusers. Hawaii County has the highest concentration of Superusers in the state, with more than 14 percent of drivers (19,600) being Superusers.

Hawaii County has the largest number of rural¹⁹ Superusers of any county in the entire United States, at 19,600 drivers.²⁰

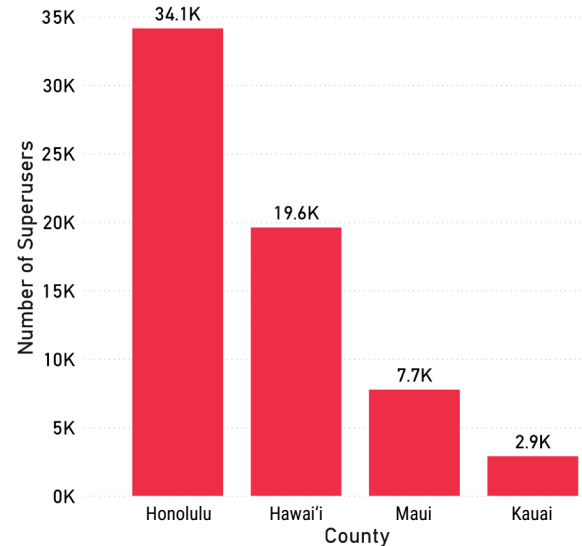
¹⁹ "Rural" is defined by the Health Resources and & Services Administration.

²⁰ Coltura Census-Level Gasoline Model.

Share of Population that are Superusers by county



Number of Superusers per county



Share (left) and number (right) of Hawai'i Superusers by county. Source: Coltura Census-Level Gasoline Model.



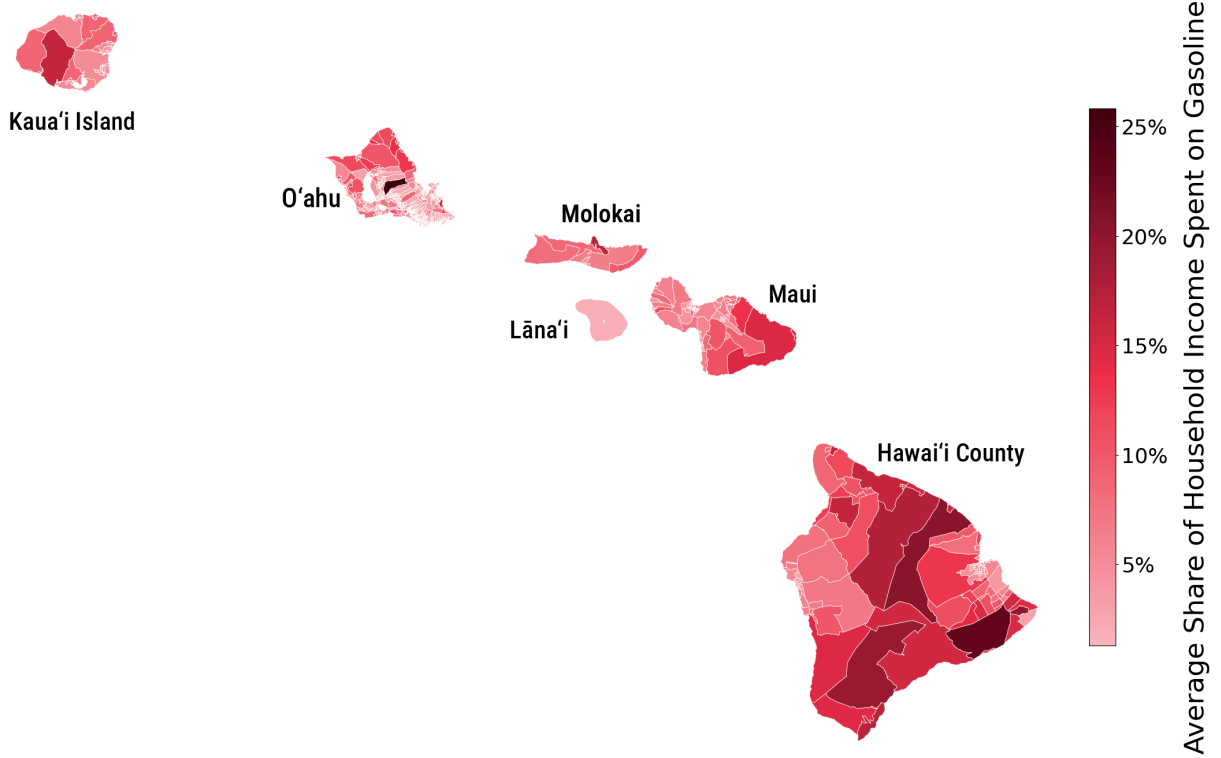
Kristina Myer Rollins, an art teacher from Kapa'a, Kaua'i, drives up to 80 miles a day in her 2009 Toyota Highlander getting to her son's school and to her job. She spends about 20 percent of her income on gasoline and drives out of the way to find cheaper gas prices.

"We won't go down to the pumps down in Kapa'a because it's 20 to 30 cents more expensive and so we're pretty exclusively getting gas at Costco because it's cheaper. We're making conscious decisions to make it work for us. Gasoline consumption, I think, is just so outdated. You know, we're holding onto it, and we don't need to. I'm not sure what the alternative that really will work for us is, I don't know enough about what is available. But I do know that I'd really love to get away from the gasoline."



The areas with high concentrations of Superusers tend to be the areas where people spend the biggest share of household income on gasoline.

Areas in Hawai'i with the Highest Gasoline Burden



State of Hawai'i, with the average share of household income spent on gasoline in each census block group indicated by color. Source: Coltura Census-Level Gasoline Model.

A. Vehicles

The most popular Superuser vehicles in Hawai'i include low-MPG SUVs, pickup trucks, and minivans, but also smaller sedans such as the Honda Accord and Honda Civic.

Top 10 Most Popular Hawai'i Superuser Vehicle Models

<u>No.</u>	<u>Make/Model</u>	<u>Percent of All Hawai'i Superusers Driving the Vehicle</u>	<u>Percent of Hawai'i Residents with Vehicle Model Who Are Superusers</u>	<u>Average MPG</u>
1	Honda Odyssey	6.5%	42.2%	20
2	Nissan Frontier	4.8%	31.7%	18
3	Honda Accord	4.3%	22.0%	24
4	Honda CRV	3.8%	17.0%	23
5	Toyota Tacoma	2.6%	22.9%	19
6	Honda Civic	2.6%	11.8%	31
7	Honda Pilot	2.4%	40.0%	19
8	Nissan Altima	2.2%	22.0%	23
9	Acura MDX	2.2%	50.0%	17
10	Hyundai Elantra	1.7%	20.0%	28

The most popular vehicles among Hawai'i's Superusers. Source: Coltura Representative Sample.²¹

²¹ These rankings are subject to potential biases present in the data collection process for the Vehicle Dataset, such as the limited collection of odometer readings.



05.

ECONOMIC BURDEN

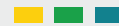
Superuser households in Hawai'i on average spend about \$13,700 on gasoline per year, or 14 percent of their household income. This compares to more than \$4,300 annually, or 5 percent of household income for non-Superuser households.²² With gas prices fluctuating between \$4 and \$5, these consistent costs become burdensome for many Hawai'i families.

²² Coltura Census-Level Gasoline Model.

Margaret Machado, a certified nurse assistant from Waipio, O'ahu, drives her 2014 Chevrolet Malibu throughout the island visiting patients. The wear and tear on her vehicle is a significant financial burden. Even after her employer covers 55 cents for every dollar of work-related gasoline costs, she spends \$400 a month on gasoline.

"\$400 a month, you could put that in savings, put more towards the college fund. You could go, maybe on a vacation because \$400 a month is a lot. And there's more that you could do with it if you didn't need to put it in your gas tank. Oil changes are about every 3 months because I drive a lot, and it costs me about \$200 every time I go."

"If I got into it and looked at the numbers, and in the long run it does save me, and this EV is a better vehicle than a gas vehicle, especially at where my mileage is and the condition of my vehicle now, of course, I would look into that."



Fuel savings are only part of the picture, as maintenance and repair of gasoline-powered vehicles cause both routine and large unexpected costs.



Brennan Naeole, a construction worker living in Pukalani, Maui, drives a 2002 Dodge Ram pickup. He uses his vehicle to carry his tools and materials to construction sites on Maui, run errands around town, and pick up his kids from volleyball practice after work.

"I always gotta move around with my vehicle, 'cause it's me and my truck, and we're like a team to make the money that I need to survive and live. In the last year, I spent a lot for this Dodge vehicle because the suspension was going out as well as the bearings in the front, the control arms (upper and lower), and the steering rod. So I had that changed out. I also got new tires. That alone was \$9,000."



06.

HOW DOES TRANSITIONING SUPERUSERS TO EVs HELP ALL HAWAII RESIDENTS?

The average Superuser in Hawai'i could save more than \$5,300 a year on fuel alone (gasoline costs minus electricity costs) by switching to an EV – and thousands more because of EVs' lower maintenance and repair costs.²³ The following examples show the potential monthly savings if a Hawai'i Superuser chooses to purchase a new or used EV instead of a gasoline car.

²³ Argonne National Laboratory, Comprehensive Total Cost of Ownership Quantification for Vehicles with Different Size Classes and Powertrains, ANL/ESD-21/4, (Chicago, IL: UChicago Argonne, 2021), <https://publications.anl.gov/anlpubs/2021/05/167399.pdf>.

Superuser New Vehicle Purchase Comparison



**Gasoline
2024 Ford F-150**



**Electric
2024 Ford F-150 Lightning**

Monthly Fuel	\$816	\$697
Monthly Maint. and Repair	\$667	\$200
Payment on Loan	\$722	\$932
Total Monthly Cost	\$2,204	\$1,829

Assumptions: 40,000 miles/year, Gas \$4.65/gallon, Electricity 42 cents/KwH, Interest Rate 6.63%, F-150 Cost \$36,770, F-150 Lightning Cost \$54,885, Federal EV purchase credit of \$7,500, F-150 Maintenance = 20 cents/mi. F-150 Lightning Maintenance = 6 cents/mi.

Superuser Used Vehicle Purchase Comparison



**Gasoline
2022 Honda Civic**



**Electric
2022 Chevy Bolt**

Monthly Fuel	\$423	\$357
Monthly Maint. and Repair	\$450	\$180
Payment on Loan	\$417	\$306
Total Monthly Cost	\$1,290	\$843

Assumptions: 36,000 miles/year, Gas \$4.65/gallon, Electricity 42 cents/KwH, Interest Rate 6.63%, Used Honda Civic Cost \$21,259, Used Chevy Bolt Cost \$19,597, Federal credit of \$4,000, Civic Maintenance = 20 cents/mi. Bolt Maintenance = 6 cents/mi.

The savings that could be realized by Hawaii's Superusers by switching to an EV offer relief from high gasoline expenditures. In the first example with the Ford F-150, the owner could be saving \$375 per month or 17 percent on combined monthly operating and debt service costs. In the second, the owner could be saving \$447 or about 35 percent. A government incentive for the purchase of an EV or other incentives such as subsidized charging can allow a low-income, high-mileage driver to save thousands of dollars annually on fuel, dramatically helping those people with fewer realistic transportation choices.

Conversion of Superusers to EVs has major economic implications. If all Superusers in Hawaii switched to EVs, redirecting funds from oil to locally generated electricity could inject \$568 million annually into the state's economy²⁴ that would otherwise go to fuel imports, mostly from Libya and Argentina. This is on par with what the state spends on road construction every year.²⁵ Converting Superusers to EVs would also decrease the state's reliance on gasoline, a key consideration given that most of Hawaii's gasoline is imported²⁶ and that the state is reliant on one refinery.

Accelerating the shift of Superusers to EVs could also lead to a significant reduction in carbon emissions. The average Superuser in Hawaii would displace 10.8 metric tons of CO₂ annually by switching to an EV. All Superusers switching to EVs would displace more than 680,000 metric tons of CO₂, or almost 4 percent of Hawaii's carbon emissions.²⁷

The environmental benefits extend beyond carbon reductions. Electric vehicles offer a cleaner, more sustainable mode of transportation, reducing air pollutants that contribute to smog and poor air quality. By decreasing its reliance on gasoline, Hawaii can also reduce the risk of oil and gasoline spills and better protect its delicate marine ecosystems.

²⁴ Coltura Census-Level Gasoline Model.

²⁵ <https://ulupono.com/project-list/the-costs-of-the-vehicle-economy-in-hawaii/>.

²⁶ <https://energy.hawaii.gov/what-we-do/energy-landscape/non-renewable-energy-sources/#:~:text=Hawaii%20imports%20refined%20products,foreign%20petroleum%20imports%20in%202021>.

²⁷ Calculated using an estimate of average Superuser carbon emissions from the Coltura Census-Level Gasoline Model and 2021 carbon emission from <https://www.eia.gov/environment/emissions/state/>.



07.

POLICY OPTIONS

- a. Provide information tailored to Superusers regarding EV cost savings and charging.
 - Do market research to understand perceptions around range anxiety and charging access, upfront EV costs, maintenance availability, and other EV barriers, and how to communicate solutions to these issues that are relevant to specific communities. Such targeted approaches have been overlooked because EV transition communications strategies have focused primarily on mainstream communities. A narrower focus on Superusers allows for more precise understanding and tailoring of communications into the perceptions and concerns of high mileage drivers, and better-crafted policies and programs addressing those challenges.
 - Conduct targeted awareness campaigns to raise awareness about the cost-saving benefits of EVs in Superuser-intensive communities. These efforts could include community workshops, and event booths, informational campaigns in local media, zip-code-based mailings, and collaborations with local community organizations.

-
- b. Integrate learnings about Superusers into existing programs and approaches: Hawai'i has organizations and willing partners in the EV transition and the Superuser approach can help improve their programs' impacts and planning.
- Hawai'i Energy – If authorized, Hawai'i Energy's existing energy programs could work together with new EV incentives to maximize Superuser cost savings.
-
- Hawai'i Green Infrastructure Authority (HGIA) – There may be an opportunity for HGIA financing programs to help finance Superusers' purchase of EVs, with repayment covered largely by consumer cost savings.
-
- Hawai'i State Energy Office and Hawai'i Department of Transportation – Better understanding of Superusers can strengthen future EV planning and collaborations for federal funding, such as implementing the National EV Infrastructure (NEVI) program for public EV charging. This information can increase the impact of deployed funds.
-
- Hawaiian Electric – Superusers' integration into the utility's transportation electrification plans could inform siting locations for their public charging network, and guide policies and programs accelerating the EV transition.
-
- Drive Electric Hawai'i²⁸ – Collaborate on a statewide EV information campaign that could share information about cost savings and other key Superuser issues.
-
- c. Develop new incentive programs for Superusers to overcome challenges to EV adoption. One of the most common challenges is the upfront costs of EVs. Targeted financial incentives to make EVs more accessible to lower/middle-income Superusers would be helpful. These could include tax rebates/credits, point-of-purchase rebates, and direct grants to assist with the purchase of EVs. Other states are moving forward with this approach. In Vermont, a law enacted in 2023 authorized a municipal utility to offer incentives to Superusers. In California, pending legislation, AB 2401 (2023-24), would modernize the Clean Cars 4 All program by targeting outreach to, and providing an additional incentive for, low-income, high-mileage drivers with older vehicles.

²⁸ <https://www.drivetricelectric.com/>.

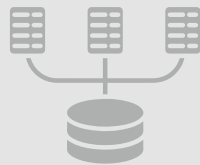
08.

CONCLUSION

This report highlights the enormous impact of Superusers on Hawai'i's transportation emissions and outlines the substantial benefits of transitioning them to EVs. By tailoring EV policies to Superusers, Hawai'i can cut emissions faster and more efficiently, enhance energy independence, and alleviate financial stress on the households most affected by high gasoline costs. Policymakers, stakeholders, and the public can support initiatives that facilitate a faster Superuser EV transition, including targeted outreach, financial incentives, and infrastructure development. Supporting Superusers' transition to EVs is a pathway to a more sustainable, equitable, and prosperous future for Hawai'i.



Appendix A: Methodology



a. Data sources

The consumer-level gasoline consumption data for this report is derived from two primary datasets:

- + Replica: The Replica dataset uses anonymized mobile location data, consumer/resident data, built environment data, economic activity data, and ground truth data to model the billions of vehicle trips taken by 210 million U.S. drivers and assigns those trips to a statistically representative “synthetic” person in a census block group. The data is updated semi-annually and data as of May 2024 was used for this report (<https://documentation.replicahq.com/docs/seasonal-mobility-model-methodology-extended-places>).
- + The commercially available vehicle dataset (“Vehicle Dataset”) provides comprehensive demographic and vehicle data concerning more than 100 million American households. Another data provider supplements the Vehicle Dataset with multiple odometer readings for roughly half the vehicles in the Vehicle Dataset.²⁹

²⁹ Data agreements require non-disclosure of the name of these datasets.

For additional information about the methodology employed, please contact Coltura directly at info@coltura.org.



b. Method for calculating consumer gasoline consumption

We combined the GPS trips data with the household and vehicle data from the Vehicle Dataset and used machine learning to predict the miles per gallon for each trip reported in the GPS dataset. We then calculated the gasoline consumption of each trip and assigned it to the synthetic person and their corresponding census block group that the GPS dataset associated with the trip. The combination of these data sources allows for the prediction of consumers' gasoline usage from the census block group level to the national level. Because many drivers drive multiple vehicles, this approach captures all driving done by a driver across the different vehicles they drive.



c. Method for creating a representative sample of Hawai'i drivers

We also created a representative sample of 2,000 vehicles in Hawai'i and their owners from the Vehicle Dataset. This representative sample is weighted based on distributions of various demographic factors in Hawai'i from the U.S. Census. Then, we calculated the gasoline consumption of the drivers in the sample by dividing the annualized miles that their vehicle traveled by their vehicle's MPG rating. This approach assumes that each driver drives only one car. If a person in the representative sample owns multiple cars, we assume that the person only drives the car with the most mileage on it. The demographic characteristics of drivers described in this report are based on the representative sample.

For additional information about the methodology employed, please contact Coltura directly at info@coltura.org.

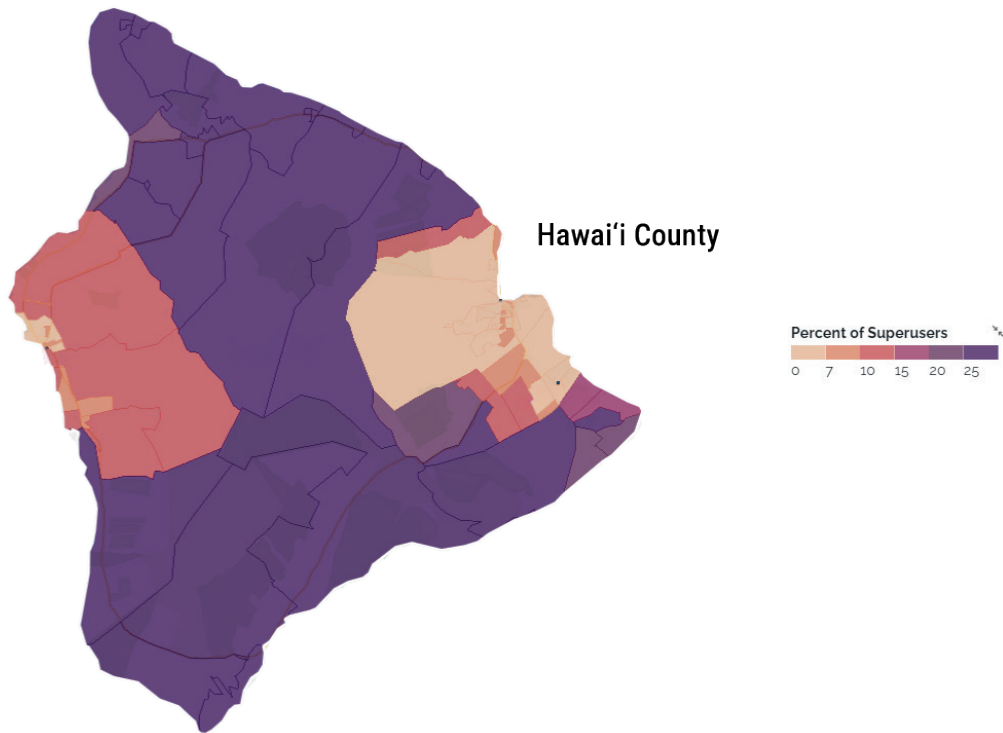


Appendix B: Hawai'i Superuser Stories

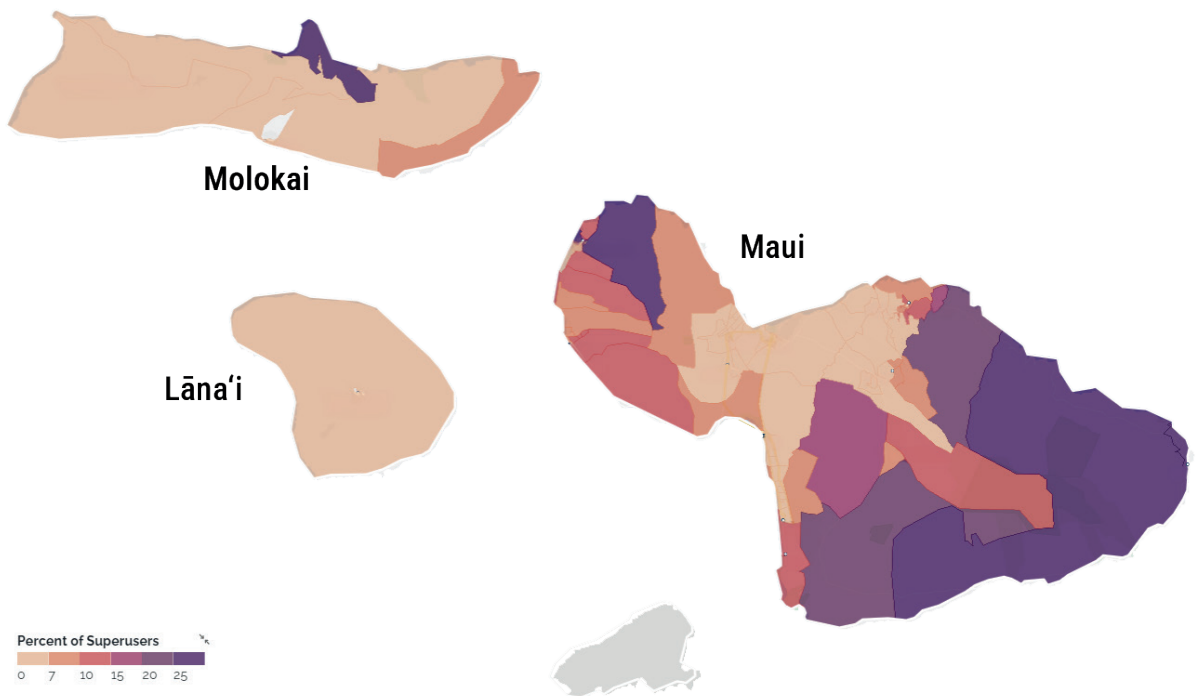
Superusers were solicited through a set of online advertisements on Craigslist, asking for people who drove disproportionate amounts. More than 40 people participated in the subsequent short survey exploring their travel. Of those, four (Janelle Glorioso, Kristina Myer Rollins, Margaret Machado, and Brennan Naeole) were chosen to show Superusers in different contexts and communities across Hawai'i. They were interviewed via video conference in spring 2024. They discussed their personal experiences with gasoline burden and vehicle troubles and their opinions on electric vehicles. They were compensated for their interview time.

Appendix C: Block Group Level Maps of Superuser Concentration by County

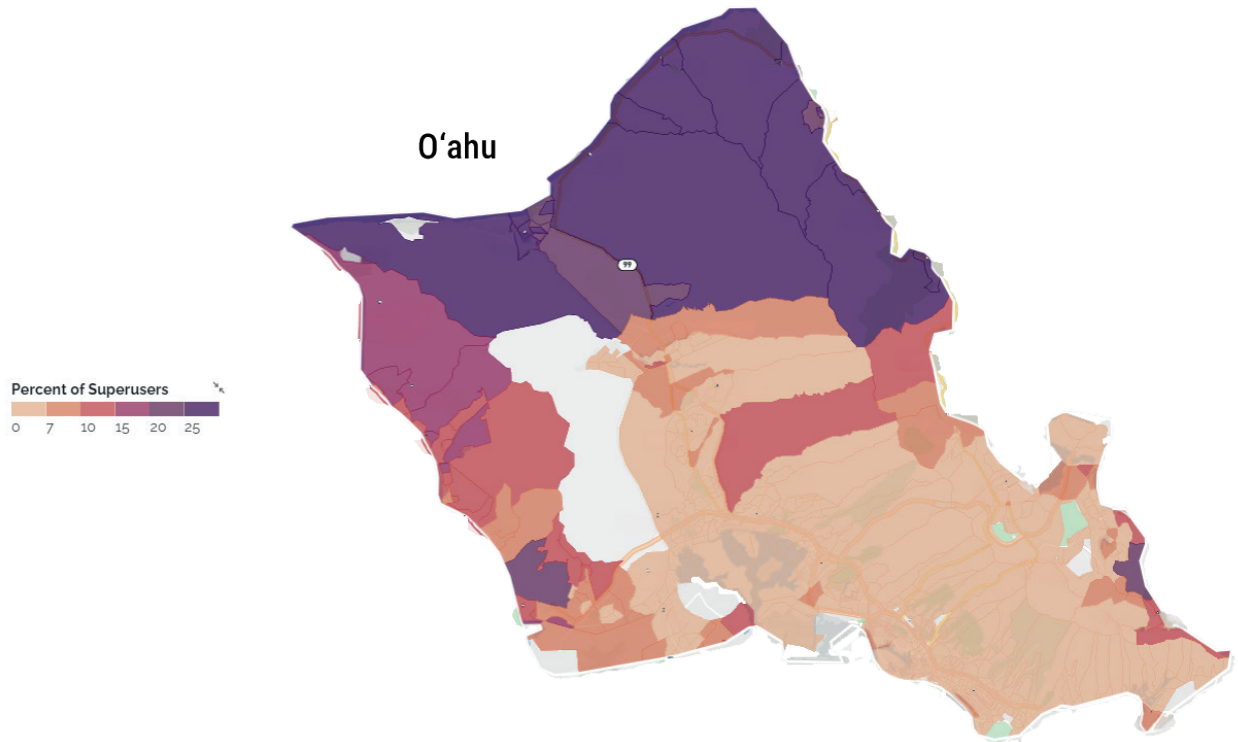
County of Hawai'i



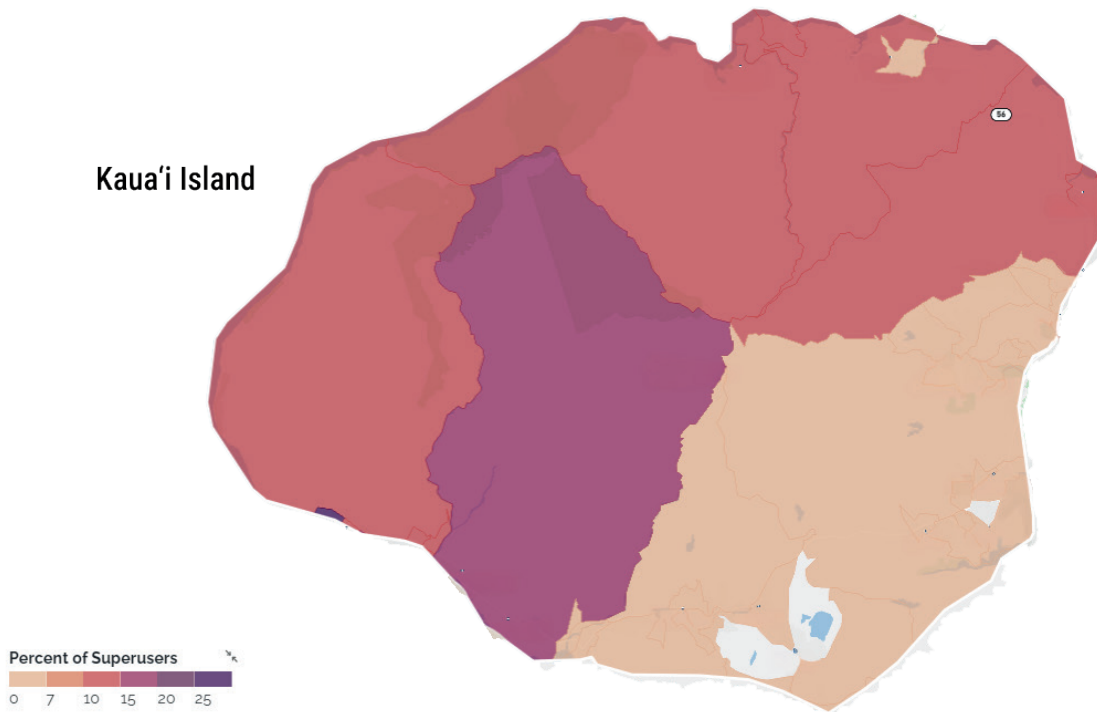
County of Maui



City and County of Honolulu



County of Kaua'i



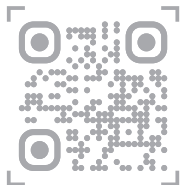


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