UCLA Luskin Center for Innovation

Informing effective and equitable environmental policy

# Electric vehicle incentives, charging, and registration rates: Are we achieving equity in Los Angeles?


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REPORT

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# 1. INTRODUCTION

California is a national leader in promoting zero-emission vehicle (ZEV) adoption, as well as distinct environmental justice goals. It maintains ambitious targets for light- and heavy-duty fleet turnover, including a mandate requiring that all passenger vehicles sold in the state be zero-emission by 2035. In support of these goals, the state has long operated several light-duty clean vehicle incentive programs that provide financial support for households to purchase a new electric vehicle (EV), often replacing an older internal combustion engine vehicle (ICEV). This suite of programs includes the Clean Vehicle Rebate Project (CVRP)[1] as well as several more recently developed equity-focused opportunities, such as Clean Cars for All (CC4A), which limit participation to low- and moderate-income households. The goal of these programs focusing on  low-income populations is to support a just transition to clean energy, ensuring no one is left behind.

Los Angeles (LA) County houses a quarter of the state's population and 51% of state-identified disadvantaged communities (DACs, SB 535), with the city of LA housing 10% of the state population and nearly 25% of its disadvantaged communities. The LA County sustainability plan sets targets for new EV charging stations (60,000 by 2025; 70,000 more by 2035) and for the ZEV share of new light-duty private vehicles (30% by 2025; 80% by 2035; and 100% by 2045).[2] The plan commits to prioritizing disadvantaged communities for charger installation, but it does not provide further or quantitative commitment to equity. As of 2019, the city of LA's Green New Deal reported the following targets for the citywide percentage of ZEVs: 25% by 2025, 80% by 2035, and 100% by 2050.[3] The city's Los Angeles Department of Water and Power (LADWP) has centered much of its signature Powered by Equity initiative on EV equity, providing three rebates designed to increase EV adoption and prevalence: a used EV purchase rebate of $1,500 to $4,000; a residential EV charger rebate of up to $1,500; and a commercial EV charger rebate between $5,000 and $125,000 per charging station, depending on the charger type.[4] As of the end of 2024, LADWP was targeting installation of 45,000 EV chargers by 2025 and 120,000 by 2030, with plans to develop "EV Hubs" throughout the city, targeting disadvantaged communities.[5]

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1 CVRP closed at the end of 2023.

2 *Our County: Los Angeles Countywide Sustainability Plan.* (2019, July). County of Los Angeles. https://ourcountyla.lacounty.gov/wp-content/uploads/2019/07/OurCounty-Final-Plan.pdf

3 *Targets**. (2024, December). [Los Angeles City Government]. Green New Deal pLAn. https://plan.mayor.lacity.gov/las-green-new-deal/targets

4 *Electric Vehicles*. (2024, December). Los Angeles Department of Water and Power. https://www.ladwp.com/residential-services/programs-and-rebates-residential/electric-vehicles

5 See slides from December 5, 2024 meeting of the LA100 Plan Advisory Group. Rucic-O'Neill, N., Lim, J., Nanne, Y., Movsesian, H., Hodel, R., & Mauch, B. (2024, December 5). *LA100 Plan: Advisory Group Meeting #6 (SLTRP & DSA)*. LA100 Plan Advisory Group Meeting #6, LADWP Wall Street Building. https://www.ladwp.com/sites/default/files/2024-12/LA100%20Plan%20AG%206%20SLTRP%20and%20DSA%20Final.pdf

However, our recent statewide study demonstrated that EV incentive and registration equity is not being achieved fast enough in California.[6] We found that since 2010, only 16% of funding from six clean vehicle incentive programs was distributed to state-identified DACs. With respect to EV penetration, while nearly every region of the state has seen an increased registration share of EVs, registration rates in some areas — such as rural areas and the Los Angeles core — remain persistently low. These apparent disparities in the LA region merit further investigation.

A related analysis by our colleagues and collaborators at UCLA's Fielding School of Public Health and Samueli School of Engineering found that per-capita ZEV ownership in non-DACs is 3.8 times that in DACs in California.[7] They also found that racial and ethnic minorities owned fewer ZEVs regardless of DAC designation. While DAC residents received 40% more pollutant reduction than non-DACs due to intercommunity ZEV trips in 2020, they also remained disproportionately exposed to higher levels of traffic-related air pollution. Moreover, a recent analysis of LADWP's EV incentive program showed several indicators of inequitable distribution of EVs and chargers.[8] Of the $5.4 million that LADWP spent on EV incentives from 2013 through 2021, only 23% went to customers in DACs. Overall, this spending disproportionately benefited non-DAC, non-Hispanic white homeowners with above-median income levels.

Given the collective findings on different aspects of EV equity from our statewide report and our colleagues' recent research, this report thus holistically considers the distributional equity impacts of EV incentives, registration, and public charging in the city and county of LA. As in our statewide report, we first assess five clean vehicle incentive programs.[9] We evaluate the effectiveness of incentives in benefiting LA's disadvantaged populations and summarize EV registration rates throughout the city and county. We use data from the U.S. Department of Energy on public charging availability to characterize prevalence and disparities. We also use data from engaged work with four underserved case example communities — Pacoima, South LA, and Wilmington in the city of LA, and the Gateway Cities in the greater LA County area — to illustrate the progress needed to achieve EV equity.

6 Connolly, R., Coffee, D., & Pierce, G. (2024). An analysis of California electric vehicle incentive distribution and vehicle registration rates since 2015. Is California achieving an equitable clean vehicle transition? UCLA Luskin Center for Innovation. https://escholarship.org/uc/item/7ht4t1km

7 Yu, Q., He, B. Y., Ma, J., & Zhu, Y. (2023). California's zero-emission vehicle adoption brings air quality benefits yet equity gaps persist. *Nature Communications*, *14*(1), 7798.

8 Anderson, K., Day, M., Romero-Lankao, P., Berdahl, S., Rauser, C., Bowen, T., Fournier, E. D., Heath, G., Hinojosa, R., Ong, P., Palmintier, B., Pierce, G., Pincetl, S., Prasanna, A., Ravi, V., Reyna, J., Lee, D.-Y., Rosner, N., Sandoval, N., … Zimny-Schmitt, D. (2023). "Executive Summary." In *LA100 Equity Strategies: Executive Summary, edited by Kate Anderson, Sonja Berdahl, Megan Day, Casandra Rauser, and Patricia Romero-Lankao. Golden, CO: National Renewable Energy Laboratory.* https://doi.org/10.2172/2221830.

9 The sixth program in our statewide report is administered in the San Joaquin Valley, and therefore not included in this LA-focused analysis.

We find major disparities at both the city and county level, some of which rival state trends. The percent of overall clean vehicle incentive dollars going to DACs is between 27% – 30%, a marked improvement over the 16% statewide average.[10] By contrast, in terms of clean vehicle registration, the gap between DAC and non-DAC residents is 3-to-1 in the county and even higher citywide, generally aligning with the statewide average.

We do not have a comparison to statewide trends for charging but find a higher number of charging stations and charging ports in non-DACs v. DACs in both the county and city of LA. The number of chargers, vehicles, and incentives per-tract falls as neighborhood disadvantage increases, though trends are more prominent for vehicles and incentives. Moreover, our four case examples illustrate the extreme EV access and realization disparities within particular neighborhoods in LA county, and thus the need for more targeted local, regional, and statewide assistance to get closer to an equitable transition to clean transportation and energy.

We present several recommendations centered on one key message: a meaningful shift in direction will be required to achieve overall clean fleet and equity goals. The state must allocate more funding for EV equity programs as it strives to reach 2035 targets. To expand the impact of investments, stakeholders can focus on developing more effective revolving loan fund programs than those attempted previously at both the state and local levels. Additionally, more stringent EV incentive program eligibility requirements will help target assistance to the communities most in need across LA. Localities can also play a key role in developing sustainable public EV charging infrastructure to meet stated community needs. Ultimately, the public agencies working to advance EV equity in the county and city of LA must increase transparency with respect to their plans to achieve such targets. As a populous and uniquely diverse region in California, LA has the opportunity to play a critical role to support equity in the state's transition to clean transportation.

10 Throughout this paper, we include statewide statistics as published in Connolly et al., 2024 (see footnote 5). For all statewide numbers, please reference that report: https://escholarship.org/uc/item/7ht4t1km

## 2. DATA AND METHODS

This study relies on the same dataset used in our prior report on statewide trends in EV adoption and incentives. The dataset combines *vehicle registration data* from the California Air Resources Board's (CARB) EMission FACtor (EMFAC) fleet database and *clean vehicle incentive data* from five programs that operate or previously operated in the LA area: three statewide programs — the Clean Vehicle Rebate Project (CVRP), the Clean Vehicle Assistance Program (CVAP), and the California Clean Fuel Reward (CCFR) — and two regional programs, Clean Cars 4 All (CC4A) and the Southern California Edison Pre-Owned EV Rebate Program (SCE-PreOR), the latter of which is not applicable for the city of LA, which is in LADWP's service territory. The consolidated dataset provides figures for total and clean residential vehicle registrations, aggregated to the census tract level, from 2015-2022, along with lifetime figures for each program's dispensed funding by tract. It also includes *population characterization data*: CalEnviroScreen 4.0 percentile, statutory DAC status, and median household income.

For a more detailed discussion of the data sources and methods used to create the statewide dataset and details on classification terminology, see Connolly et al., 2024.

Public charging data from the U.S. Department of Energy's Alternative Fuels Data Center (AFDC) was extracted and compiled in June 2024. Data included Level 2 and Direct Current (DC) fast public chargers that were either readily available or temporarily unavailable. Both EV and hydrogen fuel cell chargers were included for consistency, since several incentive programs provide offerings for fuel cell vehicles. Charger and port counts were assigned to census tracts using the latitude and longitude coordinates provided in the AFDC dataset.

Geographic mapping of data was done using ArcGIS Pro by joining the consolidated dataset to the CalEnviroScreen 4.0 shapefile by census tract. ArcGIS Pro was also used to create data subsets for the city and county of LA. The dataset for the city was created using the "Select by Location" function, set to select all census tracts that have their center in the city of LA's boundary polygon. The selection was manually verified with supplemental visual review and selection, ensuring inclusion of all census tracts whose area partially overlaps with the city of LA.

We also selected case examples to illustrate how EV access disparities play out in specific communities in Los Angeles. The four case examples we focus on are the communities of Pacoima, South LA, and Wilmington within the city of LA, as well as the Gateway Cities area of greater LA county. These neighborhoods reflect different geographies in the region but have the commonality of being communities with long-standing, profound environmental justice concerns and a history of community organizing around these issues. We are working with each of these communities on related efforts to improve energy and transportation equity.[11] Case example community boundaries within the city of LA were primarily developed using input from our community partners on what they self-defined as their community. For the Gateway Cities, we used the published Gateway Cities Council of Governments (GCCOG) boundaries.

11 See https://innovation.luskin.ucla.edu/2024/11/21/ucla-lci-joins-international-team-to-support-community-driven-energy-transition-planning/ and https://newsroom.ucla.edu/releases/ucla-led-climate-projects-state-funded-grants

# 3. ANALYSIS

## 3.1. Clean vehicle incentives

In terms of funding distribution, each EV incentive program has achieved more progressive outcomes in LA County compared to statewide averages, which is unsurprising since approximately half of LA County census tracts are DACs, compared to nearly 30% statewide (Table 1a). As is the case statewide, aggregate figures are heavily influenced by the dominance of CVRP. In LA County, CVRP incentive dollars are more than double the size of funds distributed from every other program combined. Therefore, the fact that CVRP funds in the county are awarded to DACs at nearly double the statewide rate (23.0% versus 12.1%) factor heavily into the overall observed outcomes.[12] In fact, more than half of all CVRP incentives offered statewide went to recipients in LA County (30,390 out of 59,593). The other statewide programs, CVAP and CCFR, also show significant improvements in targeting benefits toward DACs compared to statewide performance, providing 12.1% and 10.6% more of their funds to DACs, respectively. CC4A and SCE-PreOR, which were already performing well, made less pronounced gains (5.2% and 9.4% of funds, respectively). Funds administered in LA County were also distributed to lower-income areas across all programs as compared to the state, as evidenced by median tract-level income, though it is worth noting that the overall median income in LA County is lower than median income in California.

Within the city of LA, where more than half of census tracts are DACs, nearly every program performs more progressively than at the county level in terms of funding distribution (Table 1b). The only exception is CVAP, which sees a very small decrease in percentage of funds distributed to DACs (36.5% in the city of LA versus 36.6% in LA County). Among the other three programs, these improvements are marginal, with the percentage of funding to DACs increasing by single-digit percentages. Individual programs show slightly greater propensity to provide funds in lower-income areas, but the differences are small enough that the overall tract-level median income is unchanged.

12 See Connolly et al., 2024 for all statewide statistics.

TABLE 1A

LA County: Funds distributed and number of vehicles supported by five clean vehicle incentive programs over indicated periods, by census tract DAC status, with tract-level income

| | | Statewide Programs | | | Regional Programs | |
|---|---|---|---|---|---|---|
| **Metric** | **Total** *(5 Programs)* | **CVRP** *(2010-2023)* | **CVAP** *(2018-2023)* | **CCFR** *(2020-2023)* | **CC4A** *(2015-Q2 2023)* | **SCE-PreOR** *(2021- Early 2024)* |
| **Funding to DACs** | $138.2 million | $79.3 million | $3.0 million | $25.2 million | $29.0 million | $1.6 million |
| **Funding to Non-DACs** | $380.8 million | $265.0 million | $5.1 million | $87.7 million | $22.0 million | $1.0 million |
| **Percent of Funding to DACs** | 26.6% | 23.0% | 36.6% | 22.4% | 56.9% | 62.5% |
| **# of Incentives to DACs** | 59,035 | 30,390 | 591 | 23,865 | 3,553 | 636 |
| **Percent of Incentives to DACs** | 23.1% | 21.5% | 36.6% | 22.7% | 56.0% | 60.8% |
| **Median Tract-Level Income*** | $93,000 | $96,000 | $78,000 | $100,000 | $65,000 | $63,000 |

*Weighted average by funding, nearest thousand

TABLE 1B

City of LA: Funds distributed and number of vehicles supported by five clean vehicle incentive programs over indicated periods, by census tract DAC status, with tract-level income

| | | Statewide Programs | | | Regional Programs |
|---|---|---|---|---|---|
| **Metric** | **Total** *(5 Programs)* | **CVRP** *(2010-2023)* | **CVAP** *(2018-2023)* | **CCFR** *(2020-2023)* | **CC4A** *(2015-Q2 2023)* |
| **Funding to DACs** | $57.7 million | $35.4 million | $1.3 million | $12.2 million | $8.7 million |
| **Funding to Non-DACs** | $136.1 million | $92.9 million | $2.3 million | $36.8 million | $4.1 million |
| **Percent of Funding to DACs** | 29.8% | 27.6% | 36.5% | 25.0% | 67.9% |
| **# of Incentives to DACs** | 26,582 | 13,738 | 265 | 11,499 | 1,080 |
| **Percent of Incentives to DACs** | 26.4% | 25.8% | 36.5% | 25.4% | 66.5% |
| **Median Tract-Level Income*** | $93,000 | $94,000 | $76,000 | $99,000 | $59,000 |

*Weighted average by funding, nearest thousand

TABLE 2

Per-tract clean vehicle incentive funding, stratified by CalEnviroScreen percentile

| CalEnviroScreen Percentile | LA County | | City of LA | |
|---|---|---|---|---|
| | # Census Tracts | Avg. Per-Tract Incentives ($) | # Census Tracts | Avg. Per-Tract Incentives ($) |
| **0-20% (least vulnerable)** | 168 | $479,400 | 41 | $522,800 |
| **21-40%** | 257 | $415,200 | 96 | $268,300 |
| **41-60%** | 415 | $297,100 | 171 | $221,000 |
| **61-80%** | 550 | $203,800 | 235 | $196,000 |
| **81-100% (most vulnerable)** | 906 | $105,000 | 445 | $88,900 |

Figures 1 and 2 show how EV incentives have largely failed to effectively penetrate the communities in LA County and the city of LA with the greatest needs. In both overall EV incentive dollars (Figure 1) and specifically CC4A (Figure 2), large swathes of territory can be seen where areas are designated as disadvantaged but receive low levels of investment. These are clearest in areas in and around the San Fernando Valley, downtown and South Los Angeles, the Gateway Cities area, and the I-110 corridor. CC4A, which is limited to households with income at or less than 300% of the federal poverty level (FPL), does exhibit a notable difference from the overall funding levels in that there are far fewer non-DAC tracts receiving high levels of program funding and many more (though still limited) examples of DAC tracts receiving high levels of program incentives.

Examining census tracts by CalEnviroScreen quintile also highlights the degree to which incentive funds are skewed toward the least-burdened communities and away from those in greatest need (Table 2). In terms of total tract-level incentive dollars received, the most burdened tracts in LA County (> 80$^{th}$ percentile of CalEnviroScreen scores) on average received less than a quarter of the incentive funds that the least-burdened quintile received ($105,000 versus over $479,000). Within the city of LA, the results are even more skewed: The most burdened tracts received an average of less than $89,000, while the least burdened were provided over $522,000.

FIGURE 1

**Total administered clean vehicle incentive funds across five programs, census tract level, 2010 to present, by DAC status**

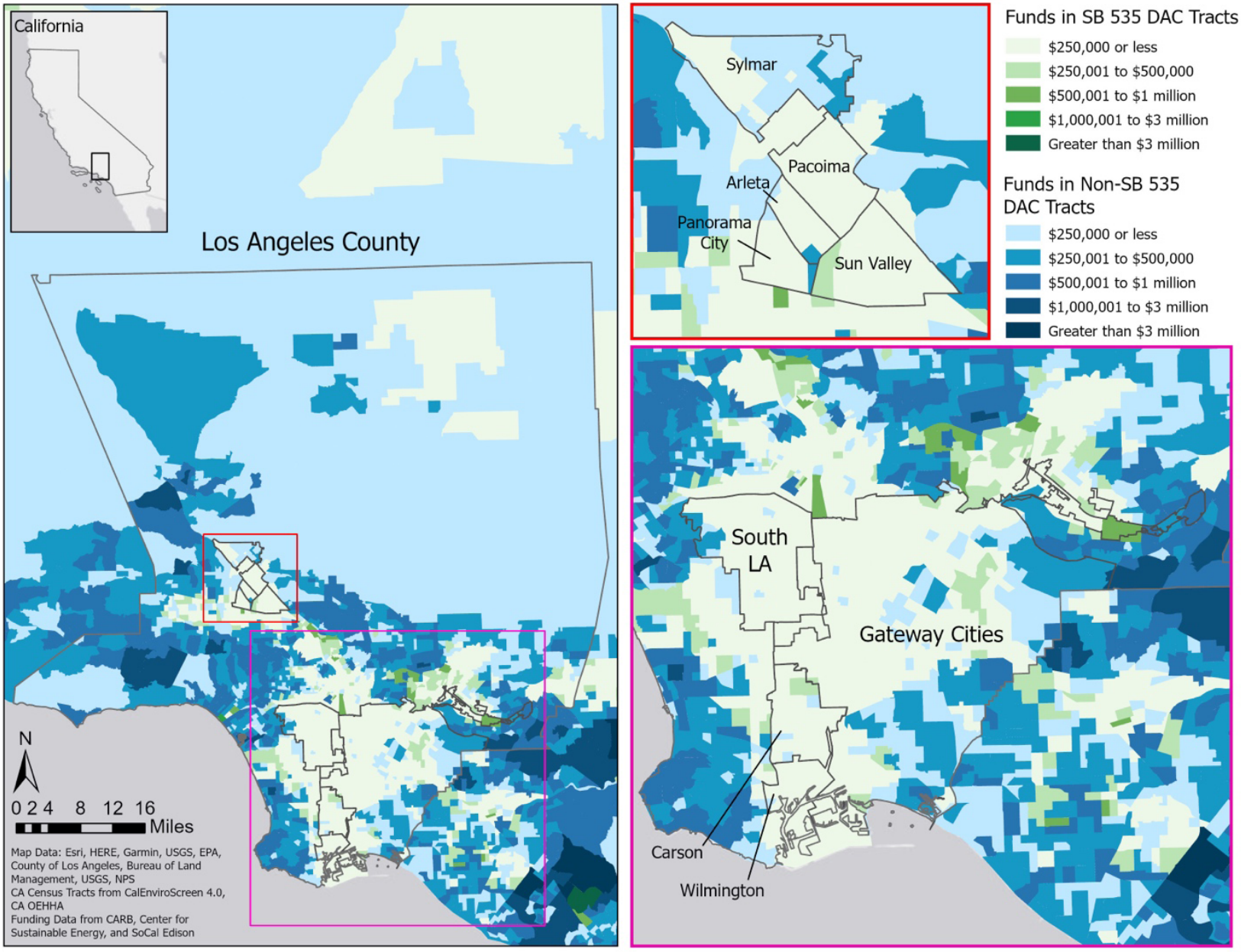
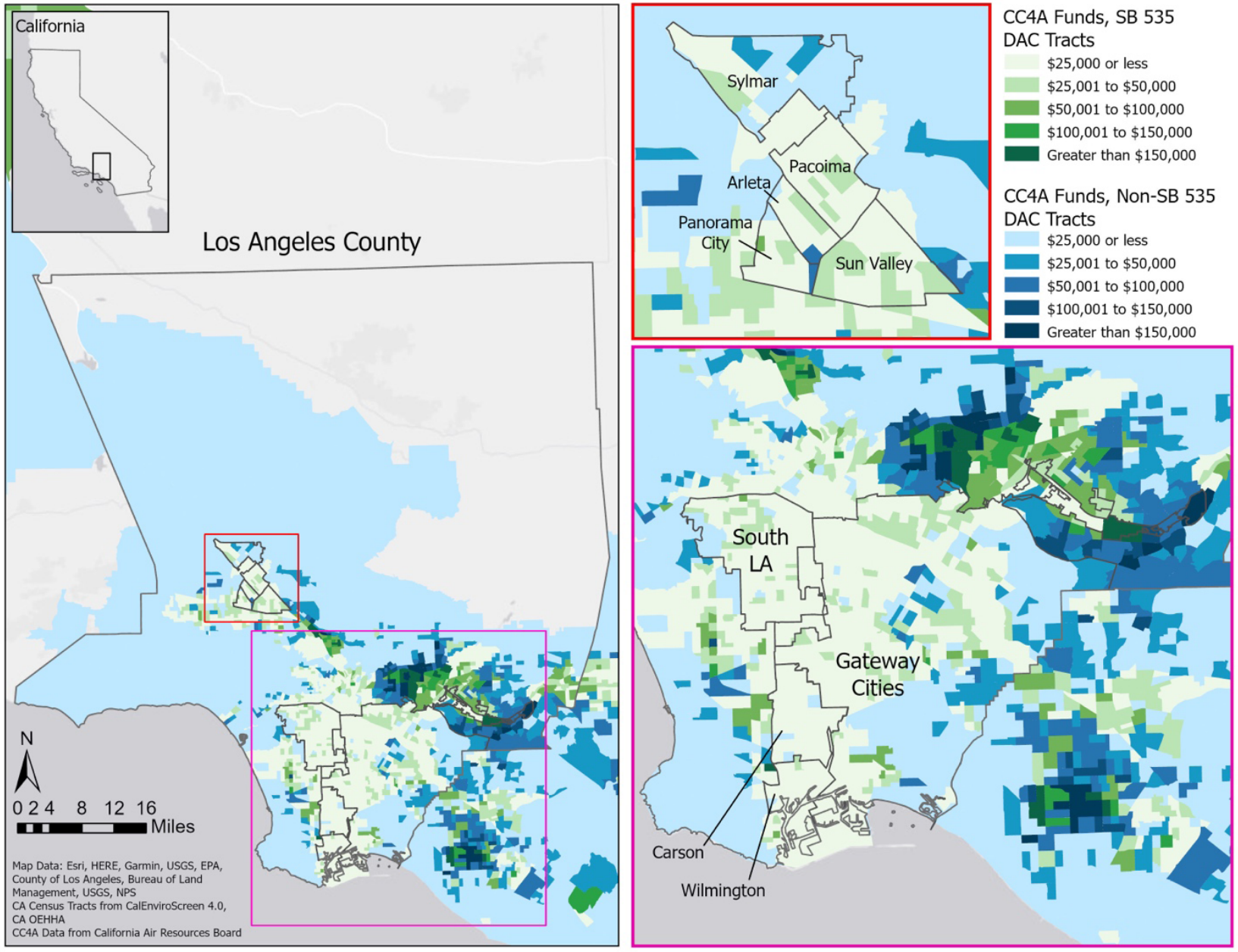


FIGURE 2

**Total administered CC4A funding, census tract level, 2015 to Q2 2023, by DAC Status**



Finally, in the case example communities summarized in Table 3 and included in Figures 1 and 2 insets, disparities in funding distribution are apparent. Each community is overburdened, with a large proportion of DACs: 96% of census tracts are identified as DACs in South LA, 81% in Pacoima and neighboring communities, 93% in Wilmington and South Carson, and 69% in the Gateway Cities. However, incentive distribution to those DACs has been low (see Figure 1 insets).

## 3.2. Electric vehicle (EV) registration

In terms of raw numbers for EV adoption as a percentage of registrations, LA County is ahead of the statewide curve, and the city of LA even more so — although state-level figures are quite low (2% for DACs and nearly 5% for non-DACs, as of 2022). EV registrations in LA DACs consistently exceed the statewide average by a growing margin, albeit only a fraction of a percent. For example, in 2015 DACs in the county and city of LA exceeded the statewide DAC registration rate by only 0.05% and 0.08%, respectively, growing to 0.13% and 0.19% in 2022. Non-DACs have been further ahead. In 2022, the county and city of LA non-DACs exceeded the statewide non-DAC registration rate by more than a full percentage point for the first time.

TABLE 3

### Case example communities

| Metric | All of CA | South LA | Pacoima & Neighboring Communities | Wilmington & South Carson | Gateway Cities |
|---|---|---|---|---|---|
| **Average Median Household Income (in 2019 $)** | $75,235 | $42,040 | $60,700 | $63,800 | $64,700 |
| **Average CalEnviroScreen Percentile** | 50% | 91% | 84% | 85% | 77% |
| **Percent of Tracts Designated as DACs** | ~29% | 96% | 81% | 93% | 69% |
| **Average % EV Registration** | 3.9% | 1.3% | 1.7% | 1.4% | 2.2% |
| **Total EV Incentive Funding** | ~$1.9 billion | $10 million | $7.5 million | $1.9 million | $60 million |
| **% of Total CA Population** | 100% | 2.1% | 0.9% | 0.3% | 5.5% |

**Sources:** American Community Survey 5-year estimates, 2015-2019;[13] CalEnviroScreen 4.0;[14] EMFAC data and incentive program data for 2022[15]
**Note:** Data used in development of this table was at the census tract level. The geographic boundaries applied for the Gateway Cities and South LA overlap, so approximately 20 tracts are included in both.

13 U.S. Census Bureau. (2019). American Community Survey, 5-year Estimates (2015-2019).

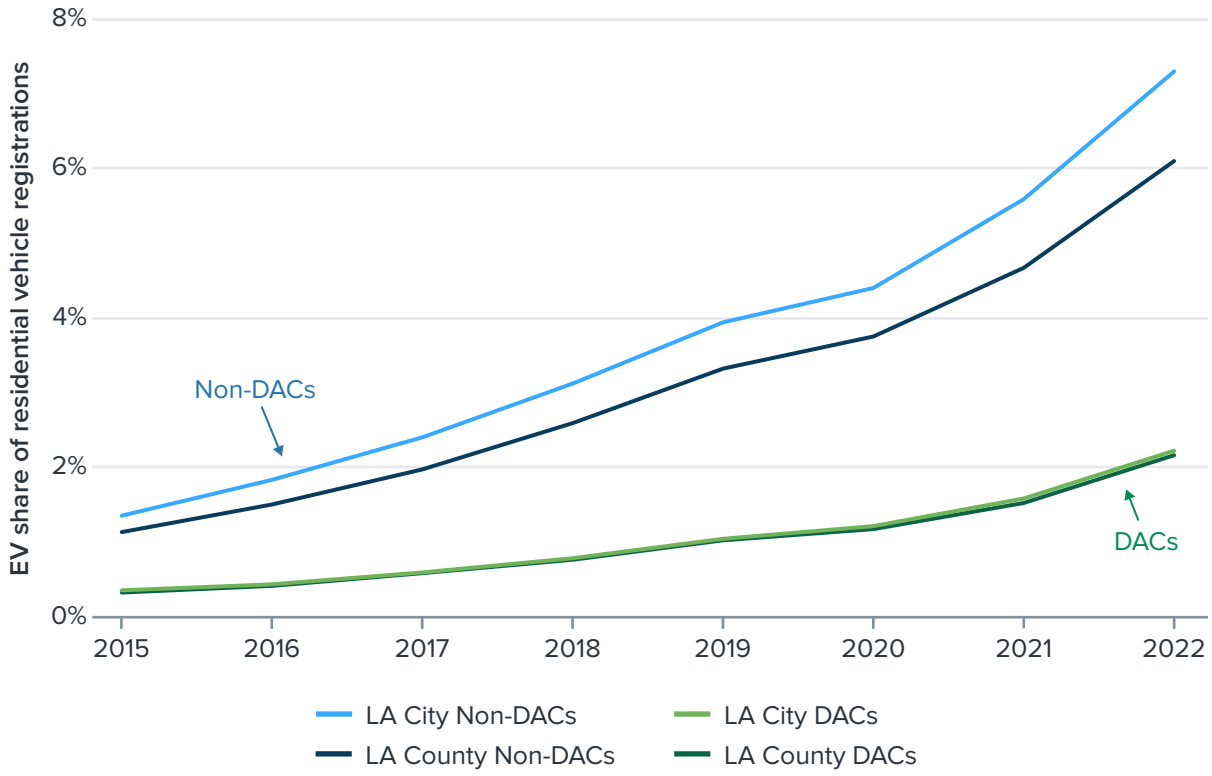
14 California Office of Environmental Health Hazard Assessment (2021). CalEnviroScreen 4.0.

15 Connolly, R., Coffee, D., & Pierce, G. (2024). An analysis of California electric vehicle incentive distribution and vehicle registration rates since 2015. Is California achieving an equitable clean vehicle transition? UCLA Luskin Center for Innovation. https://escholarship.org/uc/item/7ht4t1km

However, despite these advantages, the LA area exhibits the same inequitable trends seen with statewide registrations: DACs continue to lag behind non-DACs in EV access, and though the proportional registration rate gap has narrowed over time (e.g., from nearly 4:1 in 2015 to closer to 3:1 in 2022 for the city of LA), the absolute size of the gap has widened (Figure 3).

FIGURE 3

**Percent of residential vehicle registrations that are EVs in the county and city of LA, by year and DAC status**

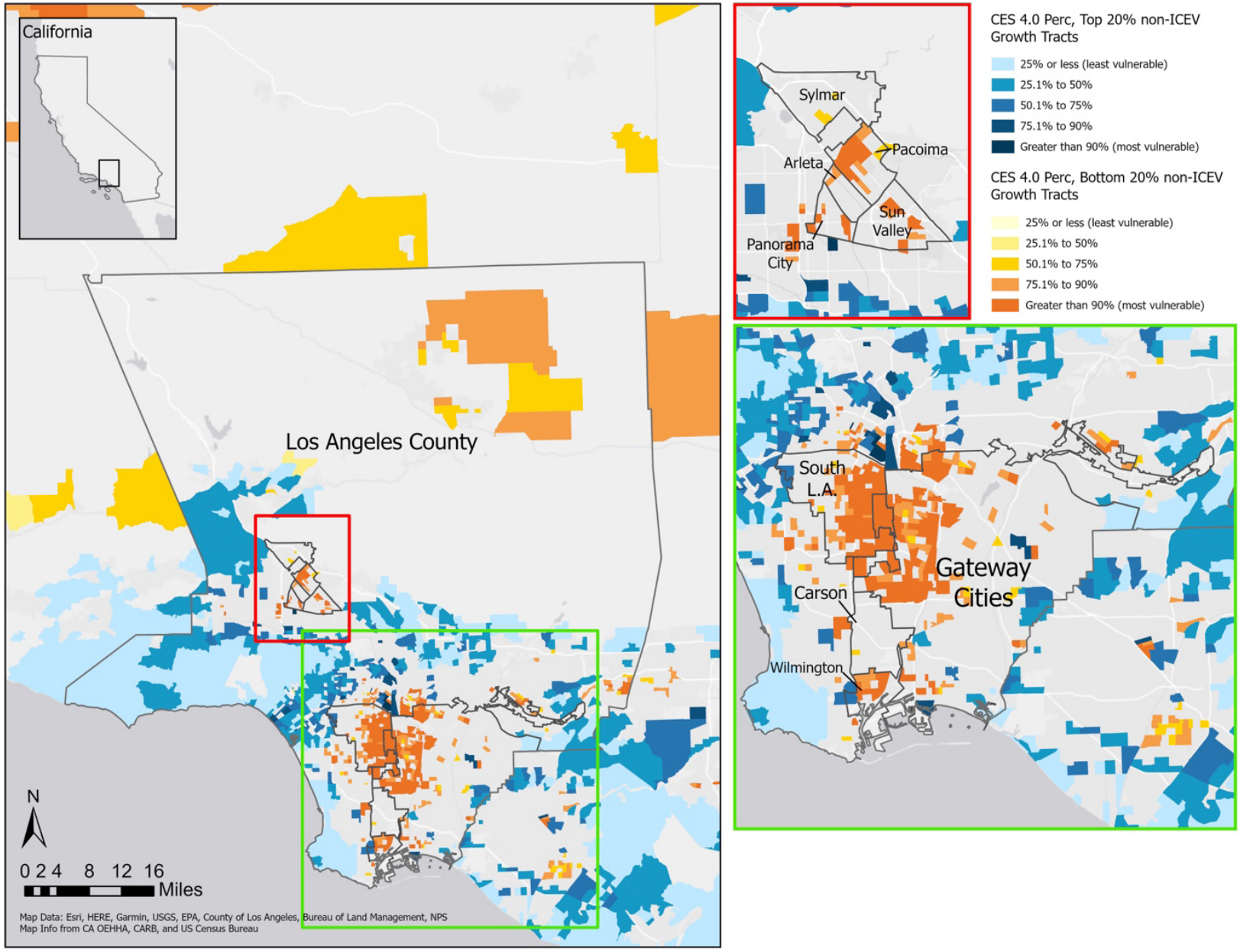



Additionally, our four case example communities lag behind as well, with a range of 1.3% – 2.2% rates of EV registration in 2022, compared to an average of 3.9% for the state (Table 3). These estimates align with the overall percentages for DACs across the city and county presented in Figure 3 and are substantially lower than the > 6% registration rate for non-DACs in the city and county.

Comparing environmental and socioeconomic burden among the highest- and lowest-growth areas for EV adoption (Figure 4), Los Angeles is one of the clearest examples in the state of a "bullseye" regressive phenomenon — an observable pattern wherein heavily burdened areas (dark orange) receiving very little EV incentive funding are ringed by neighborhoods receiving intermediate levels of funding, followed by outlying suburbs receiving high levels of funding and low burden (light blue). This pattern is most pronounced in the large hotspot of tracts in South LA and the western Gateway Cities area, which are mostly in the top 10% of CalEnviroScreen scores but in the bottom 20% by total EV incentive funds received. Similar, smaller hotspots also occur in San Fernando Valley communities and in Wilmington near the Port of Los Angeles.

FIGURE 4

## Environmental burden disparities between LA's highest and lowest EV (non-ICEV) growth quintiles, 2015-2022



## 3.3. Public charging availability

We also look secondarily at public EV charging by tract. This allows us to present insights into the achievement of equity in public charging availability (Table 4) and the spatial distribution of charging stations (Figure 5). We find higher number of charging stations and ports in non-DACs v. DACs in both LA County and city. The number of chargers trends downward as neighborhood disadvantage (with respect to CalEnviroScreen percentile grouping) increases, though there is considerable fluctuation, and patterns are less distinct for charging than they were for per-tract incentives (Table 2). We can also see distinct charging disparities within various neighborhoods in Los Angeles, including in our case example communities (Figure 5). It is challenging to entirely interpret the patterns for charging without doing more detailed spatial analyses to understand the locations of charging stations. For example, in South LA, there are several high-charging penetration tracts in the northern region as seen in Figure 5, but upon closer inspection, the University of Southern California (USC) could be driving prevalence in that area.

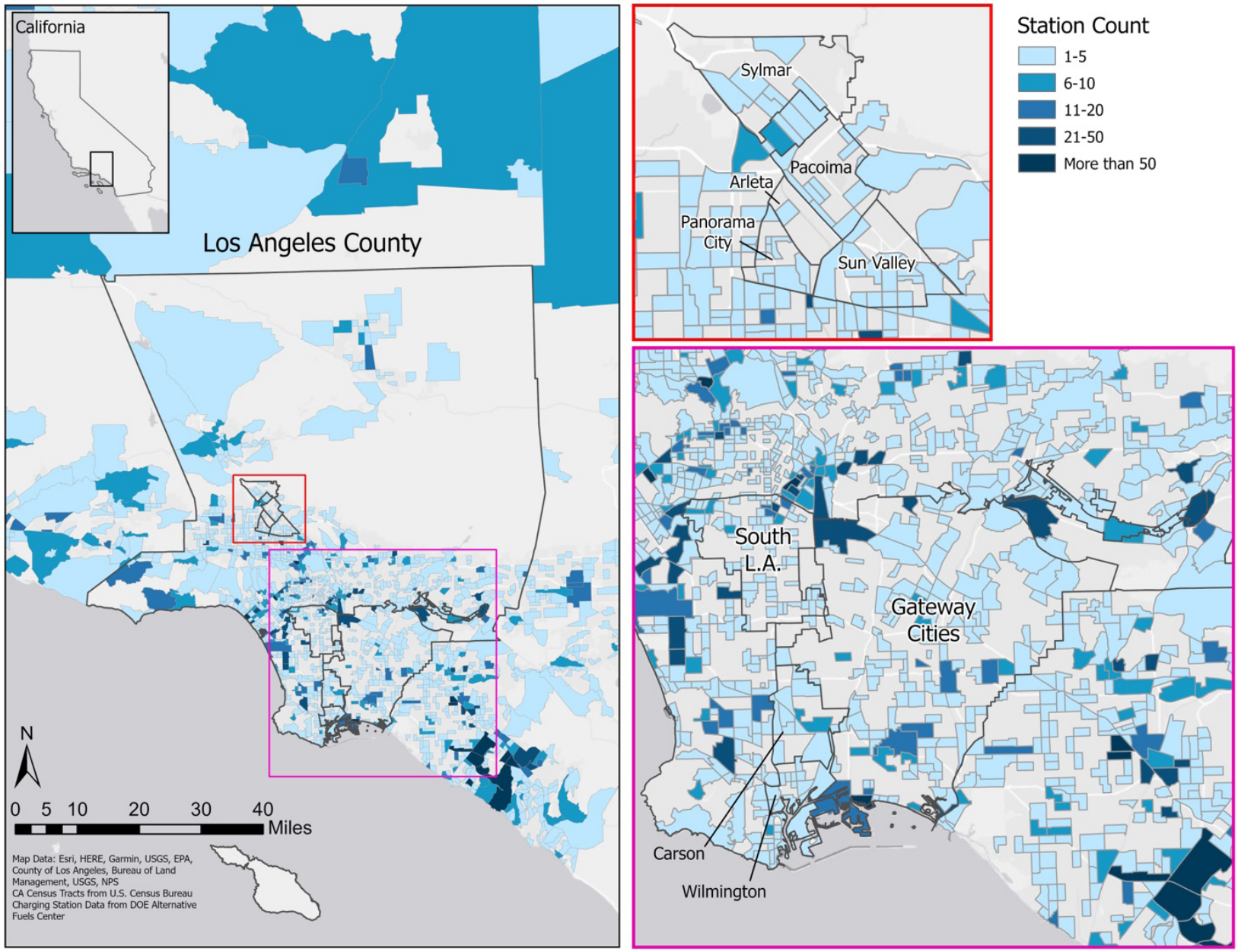
TABLE 4

**Average number of charging stations and ports, stratified by CalEnviroScreen percentile (top) and DAC status (bottom)**

| CalEnviroScreen Percentile | LA County | | City of LA | |
|---|---|---|---|---|
| | Average # Charging Stations | Average # Charging Ports | Average # Charging Stations | Average # Charging Ports |
| 0-20% (least vulnerable) | 1.6 | 5.3 | 2.1 | 6.6 |
| 21-40% | 2.4 | 7.3 | 2.9 | 7.3 |
| 41-60% | 2.0 | 5.0 | 1.9 | 4.5 |
| 61-80% | 2.0 | 5.4 | 2.2 | 5.1 |
| 81-100% (most vulnerable) | 1.3 | 4.0 | 1.8 | 4.9 |
| DAC | 1.6 | 4.7 | 1.8 | 5.2 |
| Non-DAC | 2.1 | 5.7 | 2.4 | 5.6 |

FIGURE 5

## Counts of charging stations across LA County



# 4. RECOMMENDATIONS

Our work demonstrates several gaps in stated policy goals versus achievements in EV equity, both in California as a whole and in Los Angeles. This gap is particularly stark in our case example communities. A meaningful shift in direction will be required to achieve overall clean fleet and equity goals.

The first step toward closing the gap is that the state must allocate more funding for closely focused EV equity programs to have a shot at reaching 2035 targets. This recommendation stands in contrast to the stagnation in funding in recent years, which reflects not only overall state budget trends, but also a lack of implementation versus declaration in this space. Localities are not well equipped to fill in this gap, largely due to cross-subsidy constraints such as Proposition 26 (2010). One idea for expanding the impact of dollars is to offer more effective revolving loan fund programs than tried previously at both the state and local levels.

As this analysis illustrates, there are certain communities where EV gaps are particularly outsized. Many of these communities are organizing for change and asking for more assistance from agencies. More stringent EV incentive program eligibility requirements will help target assistance to the communities most in need, including the four we highlight here.

Used EV incentive programs would benefit from an accompanying, complementary strategy to increase used vehicle inventory — particularly for programs run by LADWP and investor-owned utilities like SCE. Increasing the inventory would prevent the supply of vehicles from limiting the impact of the programs. Similarly, one-stop-shop program outreach such as Access Clean California (ACC) needs better synchronization with LADWP and SCE programs in the region to support benefit program bundling and ease of enrollment. Alternatively, the emPOWER initiative[16,17] shows promise in this regard, as it includes utility bill and energy efficiency programs along with clean transportation incentives, unlike ACC, which is limited to transportation and solar installation.

Localities such as the city (and perhaps county) of Los Angeles are better suited to focus on EV charging infrastructure than purchase incentives. In our current work partnering with three of our case example communities, we aim to codesign charging station infrastructure that is focused on the needs and preferences of underserved populations. This work is in progress, but several clear takeaways have emerged from our qualitative focus group and survey process thus far:

- There is a need for more chargers within communities, as individuals with EVs report having to drive long distances to reach a charger. There is a general preference for traveling a maximum of three miles to reach a station.

16 https://www.libertyhill.org/how-we-work/campaigns/empower-outreach/

17 Pierce, G. and Connolly, R (2020). EmPOWER: A scalable model for improving community access to environmental benefit programs in California. UCLA Luskin Center for Innovation. https://escholarship.org/uc/item/7ht4t1km

- It is important to plan for the operation and maintenance of chargers, including long-term planning for programs that may provide short-term incentives for charger installation and maintenance.
- Residents prefer a fast, efficient charging experience with a gas station model rather than amenities, though the siting of chargers near shopping centers and parks is preferred.

The city and county of LA can use the final findings from these analyses, which will be published in 2025, to develop sustainable charging infrastructure that meets community needs in the long term.

The public agencies working to advance EV equity in the county and city of LA have stated their targets, but they must make clear how they plan to achieve such targets. Until the county, city, and LADWP provide more concrete plans for investments to achieve the goals discussed at the beginning of this report, stakeholders should treat targets as aspirations with some intent rather than full commitments.

It is particularly important for regional decision makers who can make a difference to clearly state how they will work toward more equitable outcomes, as this requires specific, dedicated work tailored to the areas they serve. In general, the currently published plans and goals are lacking specificity with respect to equity targets. More detail is necessary for the public to understand and hold agencies accountable to these commitments. As a populous and uniquely diverse region in California, LA has the opportunity to play a critical role to support equity in the state's transition to clean transportation.

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