



→ Zero Emission Vehicle Incentive Program Strategy

Final Report

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SANDAG

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BYRNE COMMUNICATIONS

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Executive Summary

The San Diego Association of Governments (SANDAG), along with the County of San Diego, are working to facilitate the regional transition to zero-emission vehicles (ZEVs) to help reduce greenhouse gas (GHG) emissions from passenger vehicles and expand access to ZEVs. SANDAG included a Zero-Emission Vehicle Incentive Program (ZEVIP) in its 2021 Regional Plan and Sustainable Communities Strategy.¹ The program was also included in SANDAG's Regional Priority Climate Action Plan as a way to reduce GHG emissions, benefit low-income and disadvantaged communities (LIDACs)², and put the San Diego region on an accelerated path toward transportation decarbonization.³ This program aims to facilitate the purchase or lease of new or used light-duty vehicles, with an anticipated program launch in 2025. A central component of ZEVIP is to make it easier for residents in communities that have historically been underserved (or underrepresented, or subject to discrimination) to purchase or lease ZEVs.

This report presents a comprehensive strategy for the ZEVIP, including a detailed framework spanning program administration, incentive types, pathways for incentive redemption, and program implementation. To inform this framework, the project consultant team (hereby referred to as project team) built upon an analysis of regional existing conditions, similar programs, and input from incentive program managers, community members, community-based organizations (CBOs), regional stakeholders and public agencies. Several key considerations are recommended in the ZEVIP strategy and have been summarized below:

- A third-party administered program model is recommended to take advantage of specialized expertise, streamlined operations, enhanced stakeholder responsiveness, and liability risks mitigation.
- Point-of-sale rebates are preferred in order to provide immediate financial relief to applicants and enable equitable access to ZEVs.
- Implementing a needs-based model for incentive fund distribution, rather than a first come, first served model, can direct higher incentives to applicants requiring additional support for ZEV adoption.
- Vehicle eligibility criteria encompass both new and used vehicles, including battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs), with considerations for reliability and performance through battery warranty coverage and market-appropriate MSRP caps.
- It is advisable to set income eligibility targeting households up to 400% of the Federal Poverty Level (FPL), prioritizing residents of LIDACs with enhanced incentive amounts. Implementing a pre-application approval system for redemption processes is also suggested to verify eligibility upfront and ensure a streamlined administrative process.
- Securing sustainable funding sources and allocating administrative expenses (6-15%) is important to ensure program longevity and financial transparency.
- Dealer engagement strategies including outreach efforts to emphasize program benefits, establish clear enrollment criteria, and uphold contractual agreements for transparency and compliance, are key to program success.
- Public outreach initiatives that focus on targeted educational strategies and financial literacy workshops in collaboration with CBOs particularly aimed at LIDACs. For the program launch, it is recommended to execute a comprehensive rollout plan that includes press releases, social media campaigns, and a structured three-step approach involving educational content creation and robust monitoring mechanisms for effective program management and community engagement.

¹ <https://www.sandag.org/-/media/SANDAG/Documents/PDF/regional-plan/2021-regional-plan/final-2021-regional-plan/2021-regional-plan-appendix-b-2021-12-01.pdf>.

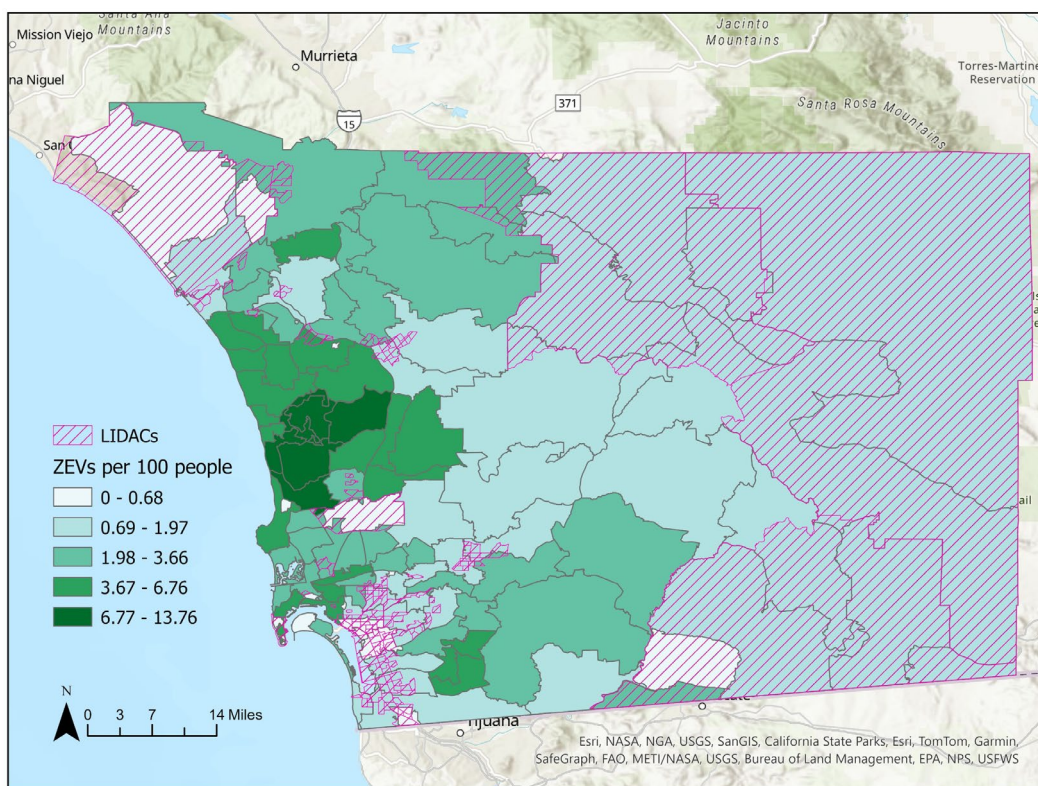
² A list of LIDACs in the San Diego region can be found on <https://www.sandag.org/-/media/SANDAG/Documents/PDF/projects-and-programs/environment/climate/priority-climate-action-plan/pcap-appendix-d-list-and-map-of-lidacs.pdf>.

³ <https://www.sandag.org/-/media/SANDAG/Documents/PDF/projects-and-programs/environment/climate/priority-climate-action-plan/pcap-san-diego-regional-pcap-2024.pdf>.

Background

This strategy identifies several key elements to consider for a ZEVIP, drawing insights from past or existing electric vehicle (EV) incentive programs, community engagement, and additional findings from the Existing Conditions Assessment (Assessment). The Assessment provides a comprehensive overview of the current ZEV landscape in the San Diego region regarding ZEV policies and programs, vehicle ownership, and consumer demographics and preferences. In addition, the project team conducted a series of interviews with incentive program managers to identify best practices for executing a regional incentive program and potential challenges that may arise. In the Assessment, the project team examined both the average vehicle age and ZEV ownership per capita using the latest vehicle registration⁴ and census⁵ information. This analysis has been updated to include a total of 159 census tracts that are considered LIDACs by the federal Climate and Economic Justice Screening Tool (CEJST)⁶, as shown in Figure 1. Residents in LIDACs account for roughly a quarter of the total population in the San Diego region⁷, while only 6% of ZEVs are registered in these communities. The average ZEV ownership per capita in LIDACs (0.5 ZEVs per 100 people) is also significantly lower as compared to the non-LIDAC average (2.3 ZEVs per 100 people).

Figure 1. ZEV Ownership in the San Diego Region.



⁴ Vehicle registration data were originally taken from the California Department of Motor Vehicles (DMV): <https://data.ca.gov/dataset/vehicle-fuel-type-count-by-zip-code>; ZEV stock data were intercompared with the California Energy Commission Zero Emission Vehicle and Infrastructure Statistics Dashboard <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics> in the Assessment, which both use zip code as geographic boundary. To better overlay vehicle registration information with LIDACs, the project team updated vehicle registration data using EMFAC2021 Fleet Database, available at <https://arb.ca.gov/emfac/fleet-db/>, which uses census block group as the boundary instead.

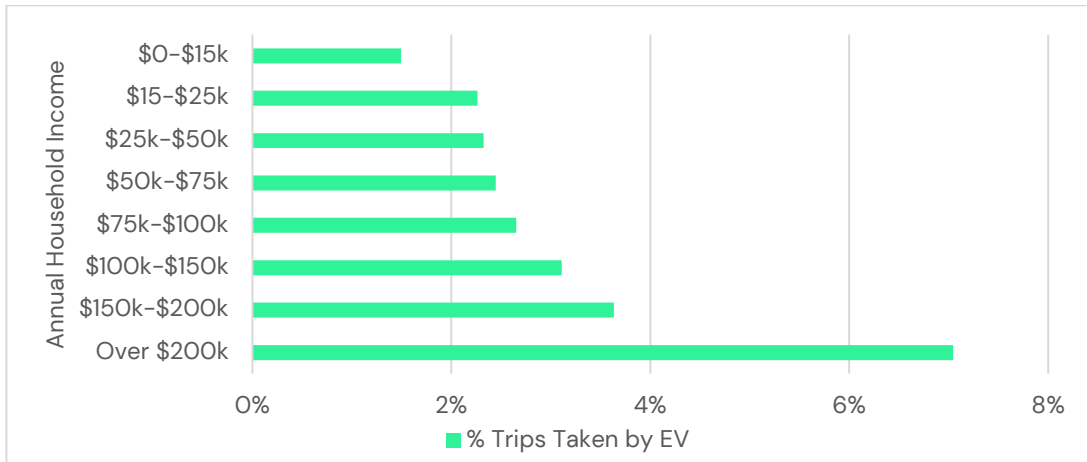
⁵ Census data are from the American Community Survey (ACS) 5-Year Data. More information can be found on: <https://www.census.gov/data/developers/data-sets/acs-5year.html>.

⁶ A community is highlighted as disadvantaged on the CEJST map if it is in a census tract that is (1) at or above the threshold for one or more environmental, climate, or other burdens, and (2) at or above the threshold for an associated socioeconomic burden. More information can be found on: <https://screeningtool.geoplatform.gov/en/#7.65/32.45/-116.984>.

⁷ Based on the 2022 ACS data, more than 743 thousand people reside in census tracts that are considered LIDACs, while the total population in the County of San Diego is roughly 3.3 million.

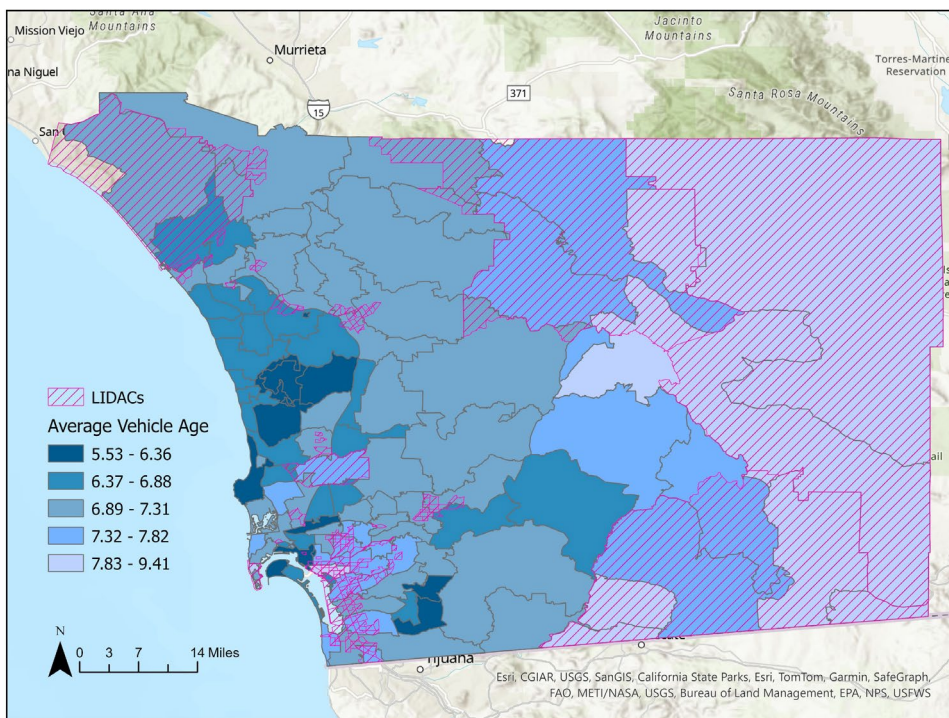
The disparity in ZEV adoption in the San Diego region can also be observed from real-world vehicle trip data from the Replica⁸ Spring 2023 dataset. As shown in Figure 2, trip takers with annual household income over \$200,000 use electric vehicles (EVs) for more than 7% their trips, whereas EV usage drops significantly among lower-income trip takers in San Diego County. Given the disproportional ZEV adoption in the region, an incentive program that targets low-income or LIDACs residents is essential.

Figure 2. Fraction of private auto trips that are electric vehicle (EV) trips in the San Diego region, Spring 2023.



Besides gaps in ZEV adoption, the Assessment also demonstrated that the average vehicle age in LIDACs is higher than the rest of the region, as shown in Figure 3. In order to further evaluate vehicle retention and age trends in LIDACs, the project team examined retention rates in the San Diego region based on 2015–2021 vehicle registration data.

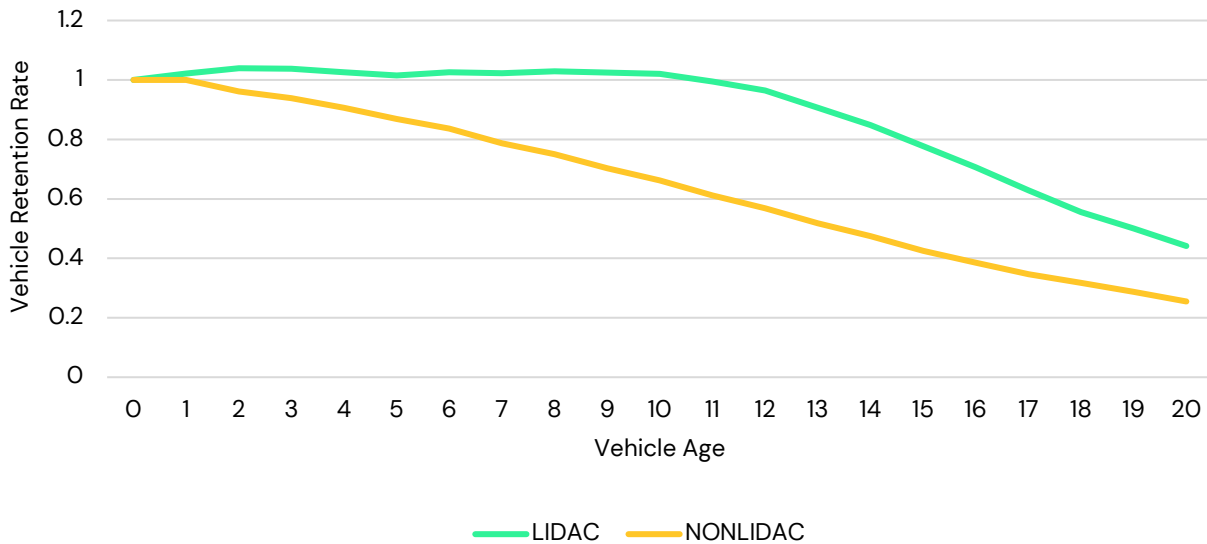
Figure 3. Average Vehicle Age in the San Diego Region.



⁸ Replica is a big data platform that uses mobile location, credit transaction, consumer marketing, geographic and land use, as well as census data to provide vehicle trip information by trip takers of various demographic characteristics. In this study, the project team leveraged Replica Spring 2023 weekday trip data in the San Diego region.

Figure 4 shows that vehicles registered in LIDACs have a higher likelihood of being retained for a longer period compared to those in non-LIDACs. The difference between the two curves is likely due to a combination of slower vehicle scrapping and higher percentage of used car purchases in LIDACs. Because older vehicles remain in use longer in these communities, there is naturally a reduced demand for new vehicles.

Figure 4. Vehicle retention rates derived based on 2015–2021 vehicle registration data in the San Diego region.



Additionally, in LIDACs there are about 19,000 new vehicle sales every year, accounting for 4.5% of the total vehicle stock in these communities. In the U.S., about 18.5% of vehicles change ownership every year (including new and used vehicle transactions)⁹. Assuming a similar turnover rate in the San Diego region, an estimated 62,000 used vehicles (18.5% - 4.5% = 14%) are sold annually to residents in LIDACs. Furthermore, the preference for purchasing used vehicles is consistent with a statewide market study conducted by the UC Davis National Center for Sustainable Transportation¹⁰ which identified that 11% of ZEV purchases from low-income buyers (annual household income less than \$50,000, as defined in the study) are used vehicles, whereas only 4.8% of ZEVs purchased by higher-income (annual household income greater than \$150,000) buyers are used. Given that the used ZEV market is generally still in its nascent stage, this may introduce additional adoption barriers to LIDACs. Therefore, the proposed program has incorporated elements and considerations that could incentivize used ZEV purchases.

To develop the ZEVIP Strategy, the project team and SANDAG undertook a robust outreach and engagement component to help ensure the program design meets the needs of those the program is being designed to reach. In March 2024, SANDAG and the project team held a series of focus group discussions with both community members and community-based organizations (CBOs) to understand the needs, challenges, and preferences of the target audience the program aims to serve. The input from focus group discussions helped the team better understand regional ZEV affordability issues and has been incorporated into this Strategy.

⁹ Automotive Market Trends Report, available at: <https://www.experian.com/automotive/auto-market-trends-webinar-form>.

¹⁰ Understanding the Distributional Impacts of Vehicle Policy: Who Buys New and Used Alternative Vehicles? Available at: <https://escholarship.org/uc/item/Otn4m2tx>.

Program Administrative Components

This section explores the key components for ZEVIP administration, including recommendations for the administration model, incentive type, and fund distribution. Building upon understanding of regional existing conditions and input from existing program managers, community members, and CBOs, the project team recommends a third-party administered, needs-based, point-of-sale program.

Administration Model

This section explores two potential administration models: a SANDAG administered program in-house, and a third-party administered program funded by SANDAG.

Under the **SANDAG administered model**, SANDAG would take on the direct administration of ZEVIP. SANDAG staff or hired personnel would handle program management, including website development, application processing, outreach, and coordination with stakeholders.

Benefits:

- **Direct Oversight:** SANDAG maintains direct oversight, allowing for quick decision-making and adaptability in response to changing circumstances.
- **Reduced Contractual Hurdles:** Minimizing or eliminating solicitation process and contractual agreements with external administrators may simplify the initial program launch.
- **Enhanced Approachability:** Running the program through SANDAG may enhance approachability for dealers, businesses, residents, and other stakeholders due to familiarity with an existing agency.

Potential Drawbacks:

- **Implementation Learning Curve:** SANDAG would need to overcome a learning curve associated with specific knowledge and capacity required for direct program implementation.
- **Resource Allocation:** SANDAG would need to hire additional staff with experience in rebate processing and knowledge of ZEVs and vehicle financing; existing staff duties and resources may have to be reallocated to accommodate program demands.
 - **Liability:** Assuming greater liability for program-related issues compared to a third-party administrator could expose SANDAG to increased legal and financial risks. This heightened liability may necessitate additional risk management strategies and resources to mitigate potential negative outcomes.
- **Privacy Complexity:** SANDAG will need to review the Public Records Request Guidelines to understand how they impact data sharing and privacy concerns, particularly regarding the secure handling of confidential information such as application forms, supporting documents, and eligibility criteria verification, which may include tax forms.

Costs:

- **Administrative Costs:** Costs associated with developing a project website, processing method, project oversight, customer service, and performance tracking (around 6-10% of the program budget).
- **Staffing and Training:** Costs associated with hiring and training staff for effective program implementation need to be factored into the budget.

Under the **third-party administrator model**, SANDAG would contract with a third-party administrator, such as an organization or consulting firm that has demonstrated experience with implementing incentive programs, selected through a competitive solicitation process. The third-party administrator would work jointly with SANDAG to design, implement, and manage the ZEVIP. This external administrator would be

responsible for matters including day-to-day operation of the ZEVIP, managing tasks such as application processing, outreach, customer service, and coordination with dealers.

Benefits:

- Specialized Expertise: As indicated in the Assessment, many existing incentive programs that aim to promote ZEV adoption have also relied on external partnerships for effective program administration. Utilizing a third-party implementer allows SANDAG to leverage expertise and capabilities in areas such as vehicle incentive program management or logistics planning, which will help address gaps in knowledge or resources that SANDAG may not possess internally.
- Efficiency and Streamlined Operations: Delegating day-to-day operational tasks to an external partner may relieve staff constraints and allow SANDAG to focus on strategic aspects and high-level decision-making. This can lead to increased efficiency and streamlined program administration.
- Enhanced Stakeholder Responsiveness: Alongside SANDAG's regional presence, partnering with a third-party implementer with experience in customer and stakeholder engagement and with existing dealership relationships and industry knowledge, enhances stakeholder responsiveness and optimizes program implementation.
- Mitigation of Liability Risks: Engaging a third-party implementer can help mitigate potential liability risks associated with program administration. These external partners typically have robust risk management strategies in place, providing an additional layer of protection for SANDAG. By establishing clear contractual agreements, performance requirements, data privacy considerations, and accountability mechanisms, SANDAG can ensure that all parties involved are held accountable for program success and compliance.
- Potential Resource Pooling: If the third-party implementer also administers other vehicle or infrastructure programs, there may be opportunities for combining resources through cross-marketing and technical resources, and providing consistent messaging to the public. This could open channels for joint initiatives, such as advertising campaigns and stackable incentives, and reaching a wider audience.

Potential Drawbacks:

- Solicitation Timeframe: If program funds must be expended by a certain date, a competitive solicitation process may delay program launch and impact program duration. Competitive solicitations should still be the preferred method for procurement.
- Coordination Complexities: Effective communication and coordination are essential to ensure the program is implemented on time and on budget with clear roles and responsibilities.
- Financial Management Challenges: If the program involves multiple funding entities, careful management is required to ensure transparency and accountability, necessitating clear delineation of responsibilities and financial oversight mechanisms.

Potential Costs:

- Administrative Costs: Costs associated with hiring and compensating the third-party administrator must be considered in the program budget. Based on feedback from managers of existing vehicle incentive programs, typical costs for third-party administration range between 10%-15% of the total program budget.

Despite the potential drawbacks associated with a third-party administered model, there are compelling reasons to recommend this approach over a SANDAG administered program. One key factor is the specialized expertise and experience that third-party implementers can provide. While SANDAG may face an initial delay due to the solicitation process, partnering with external organizations can later expedite

various processes including rebate processing and fund distribution thus enabling smoother implementation.

Moreover, SANDAG can tap into third-party administrators' existing connections and networks. This should enable more effective outreach efforts and enhanced program engagement, as third-party implementers often have established relationships with key stakeholders, such as dealerships, community organizations, and advocacy groups. Additionally, partnering with a third-party administrator can potentially shift some liability for program-related issues away from SANDAG. However, the extent of this liability transfer hinges on the negotiated terms between the implementing agency and the third-party administrator. By pursuing this approach, SANDAG can mitigate legal and financial risks, thereby minimizing the need for extensive risk management strategies and use of resources to mitigate potential negative outcomes.

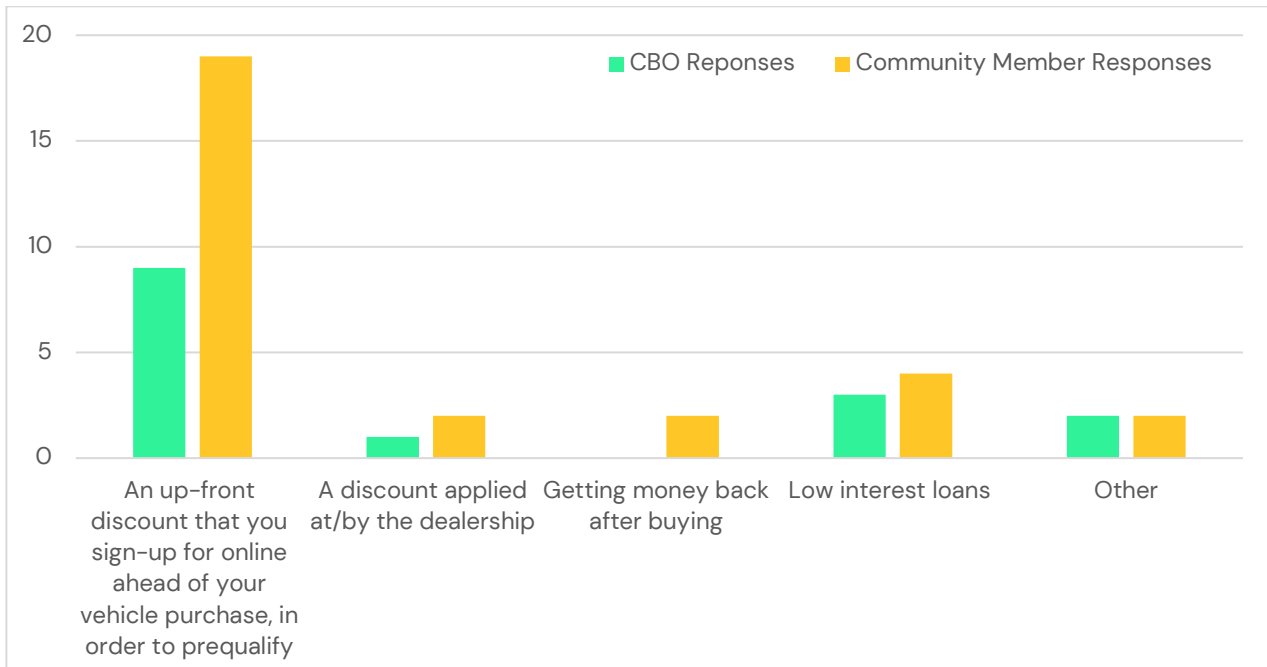
Incentive Type

Various incentive types were evaluated through feedback gathered in focus groups with CBO staff and community members (Figure 5). The incentives considered included up-front discounts, dealership-applied discounts, post-purchase rebates, and low-interest loans. More than 60% of focus group participants indicated an upfront discount as the most preferred option, which could be administered through either a prequalification process before vehicle purchase or as a discount applied at/by the dealership. Combining this with policy research and market analysis in the Assessment, the project team recommends a voucher incentive structure (point-of-sale rebate) due to its direct and immediate impact on consumers. Point-of-sale rebates provide immediate financial relief to individuals who may not have the extra funds or access to financing to cover the full upfront cost of purchasing or leasing a ZEV.¹¹ This approach ensures equitable access to incentives, promoting inclusivity and affordability for all consumers, regardless of their financial situation. Additionally, point-of-sale incentives typically have a greater influence on consumer behavior than post-purchase incentives due to psychological and practical factors including the following:

- **Immediate Gratification:** Consumers are more responsive to immediate rewards, experiencing a sense of instant gratification.
- **Perceived Value:** Discounts applied at the point of sale are perceived as more valuable than the same amount offered post-purchase.
- **Relieved Mental Barriers:** Lowering the upfront cost reduces mental barriers associated with making a substantial purchase.
- **Reduced Financial Barriers:** Lowering the upfront costs enables purchasers with less disposable income to acquire an EV.
- **Decision Simplicity:** Immediate discounts simplify the decision-making process, providing a clear and tangible benefit.

¹¹ Roberson, L. and Helveston, J.P. (2022). Not all subsidies are equal: measuring preferences for electric vehicle financial incentives. [10.1088/1748-9326/ac7df3](https://doi.org/10.1088/1748-9326/ac7df3).

Figure 5. Focus Group Discussion Responses: Most Effective Incentive Type.



Incentive Fund Distribution

In considering how best to distribute money to applicants, a first-come, first-served model has been used in several programs because it offers simplicity and speed for administrators. However, this approach does not always adequately address the diverse needs of equity communities and could potentially disadvantage those who are not swift in applying or who do not have disposable income at the time of purchase to choose higher-priced ZEVs. In addition, a first-come, first-served model may fail to provide continuity and stability for the program because funds can be expended quickly, which is an important consideration for LIDAC residents.

Given the focus of ZEVIP is to facilitate adoption of ZEVs in LIDACs and underserved communities, a **needs-based** model with the option to expand eligibility as necessary is recommended to ensure that the assistance provided directly aligns with the unique circumstances of each participant. Needs-based allocation focuses on addressing specific challenges faced by individuals and communities, directing incentives to those requiring additional support for ZEV adoption. This model fosters inclusivity and equity in ZEV adoption. Factors to be considered may include demographic factors, air quality indices, geographical representation, transportation accessibility, and socio-economic indicators (refer also to the section on applicant eligibility and incentive structure). The complexity of this method lies in defining and verifying needs, and potential subjectivity in assessments.

The implementation of the needs-based approach can be achieved through:

- **Community Engagement:** Identify specific needs and challenges through engaging with local communities, ensuring the program is tailored to address real concerns.
- **Collaboration with Local Partners:** This may include partnering with CBOs and local governments to advertise the program and better reach the intended audience. One recommended practice is to distribute CBO-designated links to the program website. The traffic to the website and applications submitted using the CBO links can be tracked and used to evaluate the effectiveness of community outreach efforts.

- Continuous Evaluation: Regularly evaluate the needs-based criteria to reflect evolving community dynamics and requirements.
- Phased Approach: Implement the needs-based approach gradually, starting with a focused approach targeting specific communities or demographic groups. If needed, the program can gradually be expanded to include broader eligibility criteria and reach a wider audience as insights are gained and strategies are refined through ongoing evaluation and community engagement.

Vehicle Eligibility

Because ZEVIP aims to encourage ZEV adoption for low- and moderate-income households and in historically underserved communities, the purchase or lease of both new and pre-owned (used) vehicles should be eligible.

Used ZEVs can provide a more affordable entry point for lower-income populations who generally tend to purchase or own older vehicles¹². As mentioned above (Figure 3 and Figure 4), the higher average vehicle age and slower vehicle retention in LIDACs indicate a potential preference or necessity for used vehicles. Including used vehicles in the program supports SANDAG and the County's equity goals by broadening access to electrification benefits across socioeconomic groups, ensuring that more individuals can participate in the transition to cleaner transportation options.

The project team recommends that SANDAG use a well-established ZEV model list such as the California Air Resources Board (CARB) Eligible Carpool Sticker List¹³ or the Clean Vehicle Rebate Project (CVRP) Eligible Vehicles¹⁴ as the preliminary list for eligible vehicle models. These lists are currently used by many ZEV programs across the State, including the Clean Cars 4 All (CC4A)¹⁵ program and the pre-owned EV Rebate Programs offered by utilities¹⁶. Using a widely known list as a reference can also help avoid confusion for applicants and enables potential stacking opportunities with other incentive programs.

To be eligible, vehicles should be registered in an address that has a zip code within San Diego County to ensure the environmental benefits of ZEVs can be fully realized locally. The project team also recommends that SANDAG set a time window of at least 30 months, within which the vehicle cannot be resold, following the example of CVRP¹⁷. SANDAG can work with the California DMV to track the vehicle identification number (VIN) throughout the program via periodic data exchange and review. This measure can effectively prevent a vehicle purchased with a ZEVIP rebate from being resold immediately afterwards. Additionally, if a vehicle is sold out-of-state, the DMV will no longer show it as actively registered, reinforcing the program's ability to track and prevent unauthorized resales. If a participant fails to meet vehicle ownership requirement, SANDAG may reserve the right to reclaim incentive funds from the original vehicle owner listed on the application form and may take further legal action as necessary. In addition to these general considerations, the following additional recommendations address fuel type, vehicle price, and model year.

Fuel Type

The project team recommends ZEVIP be open to light-duty¹⁸ battery electric vehicles (BEV) or plug-in hybrid electric vehicles (PHEV). BEVs may be eligible for a higher incentive amount due to the greater environmental benefits associated with this fuel type. The inclusion of PHEVs is suggested based on input from stakeholders, including the Accelerate to Zero Emissions (A2Z) Collaboration, as well as focus group discussions with CBOs and community members. Despite having some tailpipe emissions if used in gas mode, PHEVs can help promote equity by expanding access to cleaner transportation options and improving the overall ZEV affordability, especially in neighborhoods where BEVs may not be feasible due to limited charging infrastructure.

¹² <https://theicct.org/wp-content/uploads/2021/06/EV-equity-feb2021.pdf>.

¹³ <https://ww2.arb.ca.gov/eligible-carpool-sticker-list>.

¹⁴ <https://cleanvehiclerebate.org/en/eligible-vehicles>.

¹⁵ <https://www.sdapcd.org/content/sdapcd/grants/grants-equipment/passenger-vehicles.html>.

¹⁶ The Pacific Gas and Electric Company (PG&E) program requirements are available here: <https://evrebates.pge.com/program-requirements>; and the Southern California Edison (SCE) program requirements are available here: <https://evrebates.sce.com/program-requirements>.

¹⁷ <https://cleanvehiclerebate.org/sites/default/files/docs/nav/transportation/cvrp/documents/CVRP-Implementation-Manual.pdf>.

¹⁸ With a gross vehicle weight rating (GVWR) less or equal to 8,500 pounds. Both vehicle classes and fuel types are consistent with vehicle types that are subject to the California Air Resources Board (CARB) Advanced Clean Cars II (ACCII) regulation.

The Assessment highlighted the current availability of over 30 PHEV models in the San Diego market and that the average manufacturer's suggested retail price (MSRP) for BEVs is approximately \$65,000, whereas PHEVs are priced at around \$55,000.¹⁹ This \$10,000 price difference makes PHEVs a more accessible entry point for many consumers, broadening the demographic that can afford to transition to cleaner vehicles. Additionally, PHEVs can serve as a bridge technology, familiarizing consumers with EV technology and reducing range anxiety—a significant adoption barrier. Moreover, PHEVs provide a practical solution for those who may not have reliable access to charging stations at home or work, allowing them to experience the benefits of electrification without being entirely dependent on the existing charging infrastructure. The inclusion of PHEVs also aligns with existing or past programs, including the CVRP and Clean Cars 4 All (CC4A), that recognized their role in expanding access to cleaner transportation options.

Fuel cell electric vehicles (FCEVs) are another type of zero emission vehicle that can offer great environmental benefits. However, the limited availability of FCEV models and fueling infrastructure, as well as high fuel prices pose significant challenges to widespread adoption of FCEVs in the region in the near term. According to the U.S. Department of Energy (DOE) fuel economy data, there are only two model year 2023 FCEV models available for sale, whereas there are more than 150 BEV/PHEV models available in the market as of October 2023. As of April 2024, there are only two open retail light-duty hydrogen fueling stations across the entire San Diego County.²⁰

In addition, the cost of hydrogen fuel has risen dramatically. According to the latest Clean Cities Alternative Fuel Price Report, hydrogen price has increased over 101% from July 2022 to January 2024, with a price at roughly \$30 – \$36 per kg^{21,22}. Based on vehicle accrual rates calculated from CARB's EMFAC2021 inventory²³ and information collected from the community focus groups, the project team estimated that an average vehicle in the San Diego region drives roughly 900 miles per month. With the current hydrogen price, the average monthly spending on fuel could be as high as \$390, 150% more than the typical spending on a gasoline vehicle. The project team also conducted a sensitivity analysis to determine hydrogen affordability based on the Area Median Income (AMI), as outlined by the Department of Housing and Community Development (HCD)²⁴. The analysis shows that for a moderate-income household to afford a FCEV, hydrogen price needs to drop to at least \$9/kg on average.²⁵ Given these factors, prioritizing BEVs and PHEVs during the inception of ZEVIP is more practical and would better serve equity communities. Through implementation of the ZEVIP, SANDAG may continue monitoring the deployment of hydrogen stations and fuel prices in the area and reevaluate the inclusion of FCEVs in the future.

Model Year

For used vehicles, setting age and maximum mileage restrictions can be essential to promote newer technology adoption, reduce maintenance costs, preserve battery performance, minimize environmental

¹⁹ Data retrieved from the ICF proprietary EV Library, and luxury models are excluded from the calculations.

²⁰ <https://www.energy.ca.gov/data-reports/energy-almanac/zero-emission-vehicle-and-infrastructure-statistics/hydrogen-refueling>

²¹ Original report cited \$33.48/GGE (gasoline gallon equivalent). The project team assumes a conversion factor of 1.019 (1 GGE = 1.019 H₂ kg). Report is available: https://afdc.energy.gov/files/u/publication/alternative_fuel_price_report_january_2024.pdf. Conversion factor is retrieved from: <https://epact.energy.gov/fuel-conversion-factors>.

²² <https://www.hydrogeninsight.com/transport/analysis-it-is-now-almost-14-times-more-expensive-to-drive-a-toyota-hydrogen-car-in-california-than-a-comparable-tesla-ev/2-1-1519315>.

²³ <https://arb.ca.gov/emfac/>.

²⁴ HCD uses income categories such as: Acutely Low Income (0-15% of AMI), Extremely Low Income (15-30% of AMI), Very Low Income (30% to 50% of AMI), Lower Income (50% to 80% of AMI, or 0% to 80% of AMI), and Moderate Income (80% to 120% of AMI). More information available at: <https://www.hcd.ca.gov/grants-and-funding/income-limits>.

²⁵ Assuming an average FCEV energy efficiency of 14.4 g H₂/mile. Max loan amount of \$30,000 and \$19,200 for new and used vehicles were considered in this analysis, respectively.

impact, and build consumer trust in ZEV adoption. The Clean Vehicle Assistance Program (CVAP)²⁶, for example, required vehicles to be 8 model years old or newer to be eligible. Additionally, according to findings from the Assessment, most battery warranty coverage runs for eight years or 100,000 miles after the initial purchase, whichever comes first. The project team recommends that SANDAG restrict eligibility of used vehicles to those within their battery warranty. This will help relieve the concern of degraded battery capacity or high cost from battery replacement soon after purchasing a pre-owned vehicle.

Vehicle Price

In addition to make and model eligibility, for new BEVs or PHEVs²⁷, MSRP cap limits for passenger cars and larger vehicles such as passenger trucks and vans can be implemented to prevent incentives from being used for high-end luxury vehicles. Currently, CARB's incentive programs such as CC4A and Financing Assistance use a base MSRP of \$60,000 or less for vehicles that fall under the Large Vehicles category, and \$45,000 or less for smaller cars.²⁸ Similarly, the IRS Clean Vehicle Credit caps MSRP at \$80,000 for larger new vehicles and \$55,000 for other new vehicles.²⁹ The project team has examined the vehicle MSRPs from CARB's Eligible Carpool Sticker List, which contains more than 400 ZEV variations (including listings for the same model with different trims). The analysis shows that the cheapest sedan offerings from more than ten vehicle manufacturers are above \$60,000, which are potentially targeted at higher-income buyers. While vehicle caps are recommended for inclusion in ZEVIP, to exclude luxury vehicles purchased through ZEVIP, the project team would also like to acknowledge that the current MSRP limits from the CARB and IRS programs can also greatly limit the variety of eligible models, especially for sedans.

Based on the market research conducted in the Assessment, the project team has found that only seven electric (including both BEV and PHEV) sedan models have an MSRP below \$45,000. In contrast, sport utility vehicles (SUVs) have at least ten more offerings than sedans, and on average are priced lower compared to sedans. Figure 6 shows a sample of the new sedan and SUV options available in the market, demonstrating cheaper electric SUV prices compared to electric sedans. Note that Figure 6 only shows a sample of available electric sedans and vehicles with an MSRP below \$45,000 and is not representative of all available electric sedans or SUVs.

Given the similar operational characteristics and seating arrangement of sedans and SUVs, the project team recommends grouping these two vehicle types together with a uniform MSRP cap. The median MSRP of currently available electric sedans and SUVs is roughly \$58,000, which covers a total of 115 trim-level variations. The median MSRP of electric vans and pick-ups is \$69,000, which covers 20 available trim variations. Therefore, the project team recommends SANDAG to use \$58,000 and \$69,000 as MSRP caps for sedans/SUVs and vans/pick-ups, respectively. SANDAG can review these caps periodically and consider adjustments as needed to reflect market changes.

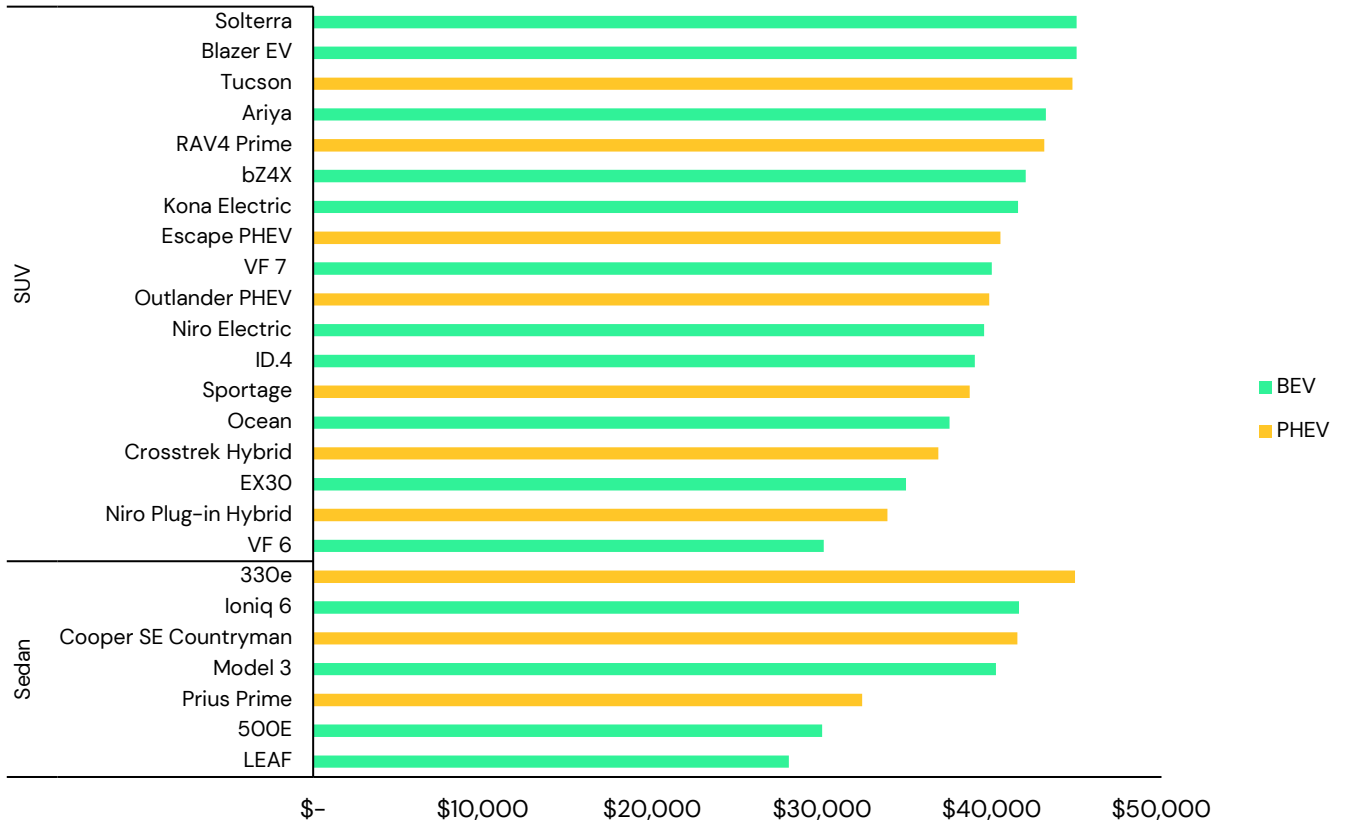
²⁶ <https://cleanvehiclegrants.org/vehicles/>.

²⁷ FCEVs may currently have a more limited market presence compared to other electric vehicle types. Imposing the same MSRP cap might hinder the growth of the FCEV market, where affordability and market adoption are crucial factors.

²⁸ Large Vehicle includes minivans, pickups, and SUVs. The rest are all other light-duty vehicle classes (e.g., hatchbacks, sedans, wagons, and two-seaters). More information can be found on: <https://www2.arb.ca.gov/ZEV-eligibility-list>.

²⁹ <https://www.irs.gov/credits-deductions/credits-for-new-clean-vehicles-purchased-in-2023-or-after>.

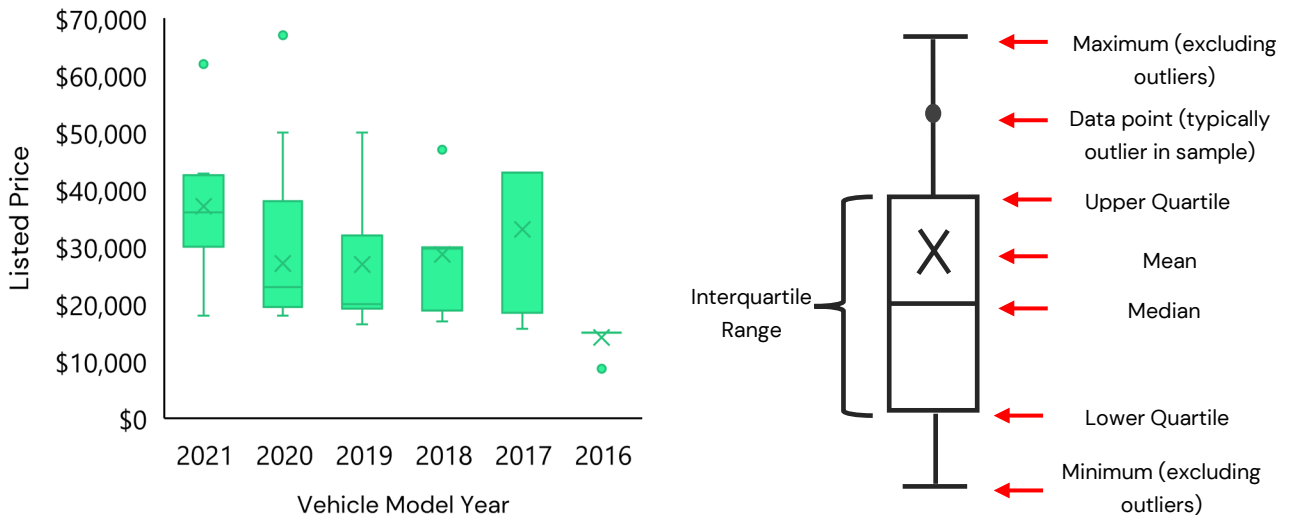
Figure 6. Sample of Available New Electric Sedans and SUVs below \$45,000 MSRP.



For used vehicles, it's advisable to base the eligibility criteria on the sale prices rather than MSRP values. The sale price reflects the actual transaction value, considering factors like depreciation and market conditions, providing a more accurate representation of affordability for consumers. This sales cap should balance affordability while ensuring the inclusion of a variety of used ZEVs. The federal tax credit eligibility criteria for used vehicles require a sale price of \$25,000 or less to qualify. The project team conducted a used EV market analysis in the Assessment and found that the median price of a used EV in the San Diego region is approximately \$30,000. The project team recommends using this number as the sale price cap for used vehicles. It is also worth noting that given the dynamic change of the used vehicle market, the number may remain flexible to accommodate changes in the market over time. The project team recommends that the sales cap be regularly reviewed and adjusted once the ZEVIP is implemented.

Figure 7 visualizes the San Diego region's used EV prices, which were collected in the Assessment using publicly available dealership data. The "box and whisker" plot summarizes used EV price statistics, indicating the overall range in prices: the mean, median, and outliers are also shown. These statistical summaries are segmented by vehicle model year to show the range in prices that can be observed in the San Diego region's used EV market.

Figure 7. Used EV listed prices in San Diego by model year (OCT 2023).



Applicant Eligibility and Incentive Level

Applicant eligibility criteria should be carefully defined, considering both federal geographic designations for LIDAC communities and/or regional income thresholds. Simplicity in criteria is essential to encourage widespread participation, ensuring ease of understanding for potential applicants. Achieving a balance is also crucial, as excessive restrictions or tedious eligibility verification might deter participation.

Following the example of existing incentive programs, applicants should be limited to an individual or a household based in San Diego County when the rebated vehicle is purchased or leased. Additionally, a limit of one application per individual or household should be implemented. Applicants may acquire the ZEV within a specified timeframe following approval of individual eligibility, to encourage timely utilization of available rebate funds and incentivize prompt action from applicants. As an example, the San Diego CC4A participants are encouraged to purchase their replacement vehicle within 90 days.³⁰ More detailed applicant eligibility requirements are discussed below.

Income Level Eligibility

To address the disparities in ZEV adoption rate among different socioeconomic groups, the program targets low-income households for purchase incentives. Previous studies have also shown that low-income EV buyers are more responsive to incentives, and that purchase incentives have become more important over time^{31, 32}. Aligning with existing income-based incentives, this criterion ensures that incentives are directed to those with the greatest financial barrier to entering the ZEV market.

Criteria to determine income eligibility can be based on a percentage of the median household annual gross income in the target geographic area, known as Area Median Income (AMI), or the Federal Poverty Level (FPL) based on U.S. Department of Health and Human Services (HHS) poverty guidelines³³ used to determine financial eligibility for certain programs. Income eligibility based on median income may be informed by the percentages of AMI³⁴. The most recent AMI and FPL income levels are summarized in Table 1 below, along with the advantages and disadvantages of each approach.

Percentage of Area Median Income by household size

Pros:

- Reflects local economic conditions more accurately.
- Allows for customization based on the specific area's cost of living.

Cons:

- Requires access to up-to-date and reliable median household income data for the target area.
- May involve more administrative effort to regularly update income thresholds.

Federal Poverty Level (FPL) by household size

Pros:

- Standardized measure used across the US.
- Simplifies administrative processes as FPL figures are readily available.

Cons:

³⁰ https://www.sdcc4a.org/Clean_Cars/FINAL_Sample_Terms_and_Conditions.pdf.

³¹ <https://doi.org/10.1016/j.tra.2019.11.004>.

³² https://www.nber.org/system/files/working_papers/w25359/revisions/w25359.rev1.pdf.

³³ <https://aspe.hhs.gov/topics/poverty-economic-mobility/poverty-guidelines>.

³⁴ <https://www.sandiegocounty.gov/sdhcd/rental-assistance/income-limits-ami/>.

- Might not fully capture the local cost of living variations and may require adjustments.

Table 1. San Diego County AMI and FPL Guideline Income (in US Dollars) Comparison by Household Size.

Household Size	San Diego County Income Limits (April 2024)			2024 Federal Poverty Level Guideline			
	30% of AMI	50% of AMI	80% of AMI	100% FPL	200% FPL	300% FPL	400% FPL
	Extremely Low Income	Very Low Income	Low Income				
1	\$31,850	\$53,050	\$84,900	\$15,060	\$30,120	\$45,180	\$60,240
2	\$36,400	\$60,600	\$97,000	\$20,440	\$40,880	\$61,320	\$81,760
3	\$40,950	\$68,200	\$109,150	\$25,820	\$51,640	\$77,460	\$103,280
4	\$45,450	\$75,750	\$121,250	\$31,200	\$62,400	\$93,600	\$124,800
5	\$49,100	\$81,850	\$130,950	\$36,580	\$73,160	\$109,740	\$146,320
6	\$52,750	\$87,900	\$140,650	\$41,960	\$83,920	\$125,880	\$167,840
7	\$56,400	\$93,950	\$150,350	\$47,340	\$94,680	\$142,020	\$189,360
8	\$60,000	\$100,000	\$160,050	\$52,720	\$105,440	\$158,160	\$210,880

FPL has been more widely used than AMI to determine program eligibility, including in the San Diego CC4A³⁵, CVRP³⁶, the CVAP³⁷, Medicaid³⁸, and Medi-Cal³⁹. Therefore, using FPL as income level guidance improves the potential to allow stackable eligibility between programs. Applicants could be automatically qualified for ZEVIP if they have already been prequalified for another program that requires income verification following FPL guidance, which may reduce the administrative hurdles for many income-qualified applicants to participate in ZEVIP. Table 2 provides information on the different percentages of FPL used across similar successful programs. Additionally, based on the insights drawn from administrator interviews in the Assessment, households within the bracket of 300% to 400% FPL can be a critical market to target. These income thresholds are also consistent with the affordability analysis discussed later in this section, and thus the project team recommends ZEVIP consider using similar income eligibility criteria.

Table 2. FPL Thresholds used across other vehicle incentive programs.

Program	% FPL Used to Determine Eligibility
San Diego CC4A	300% FPL by household size
CVRP	400% FPL by household size
CVAP	300% FPL by household size

As mentioned earlier, one potential drawback of FPL is that it may fail to capture the local cost of living. Therefore, FPL income brackets need to be evaluated using a regional context. As shown in Table 1, using a household size of 3 as an example (see row highlighted in blue), 100% FPL falls under the Extremely Low Income category, 200% FPL falls under the Very Low Income category, 300% FPL falls under the Lower

³⁵ https://www.sdcc4a.org/Clean_Cars/Eligibility.

³⁶ <https://cleanvehiclerebate.org/en/eligibility-guidelines#income-eligibility>.

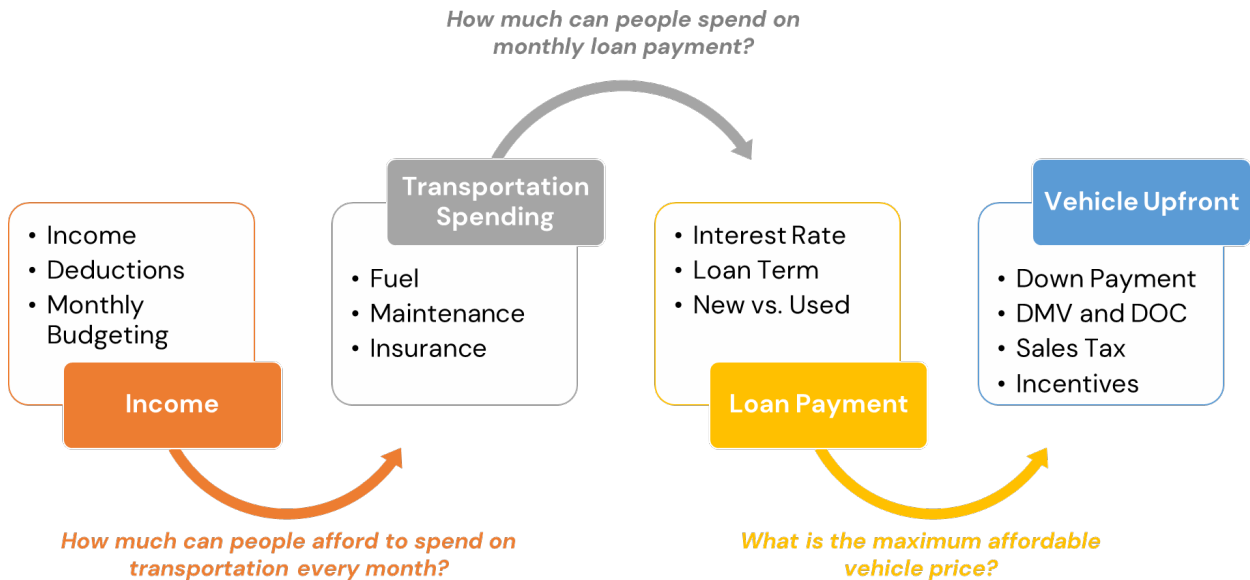
³⁷ <https://cleanvehiclegrants.org/eligibility/>.

³⁸ <https://www.medicaid.gov/medicaid/index.html>.

³⁹ <https://www.coveredca.com/health/medi-cal/>.

Income category, and 400% FPL is roughly the same as Median Income. Given the primary focus of ZEVIP is to increase ZEV adoption for low-income applicants, with potential to expand to moderate-income applicants, the project team recommends that SANDAG focus on applicants falling within the 200%–400% FPL brackets.

Figure 8. ZEV Affordability Calculator Process Flow.



To better determine the targeted income brackets for ZEVIP, the project team also developed an affordability calculator that uses a comprehensive list of cost and spending inputs to estimate the maximum price of a new or used ZEV that ZEVIP applicants can afford based on their income levels. The analysis process is demonstrated in Figure 8 above, and relies on the following set of assumptions:

- An average household size of 3 for San Diego County based on US Census⁴⁰ data.
- Based on the latest data from the Bureau of Transportation Statistics, total transportation costs account for 15% of average household spending in the US⁴¹. Therefore, vehicle affordability is determined for San Diego residents assuming 15% of their net monthly income will be spent on the loan payment and operation from owning a ZEV. Note that this serves as an upper bound estimation since the 15% estimation accounts for all household transportation spending. As most households in the San Diego region have more than one vehicle, the per-vehicle average spending may be less than 15%.
- Regional auto loan rates of 5.99%–8.04% for average loan terms of 48, 66, 75, and 84 months based on San Diego County Credit Union data⁴², along with an option to use lower interest rate range of 3.99%–5.99%, which is being offered by the MAAC Electric Vehicle Access Program.⁴³ In this analysis, a loan term of 66 months was assumed.
- Insurance and maintenance costs of \$216 and \$65 per month based on estimates developed in Task 2 focus group findings. EV insurance has been adjusted to be 20% higher than that of gasoline vehicles.

⁴⁰ Available at: <https://www.census.gov/quickfacts/fact/table/sandiegocountycalifornia/PST045223>.

⁴¹ U.S. Bureau of Transportation Statistics, The Household Cost of Transportation: Is it Affordable? Available at: <https://www.bts.gov/data-spotlight/household-cost-transportation-it-affordable>.

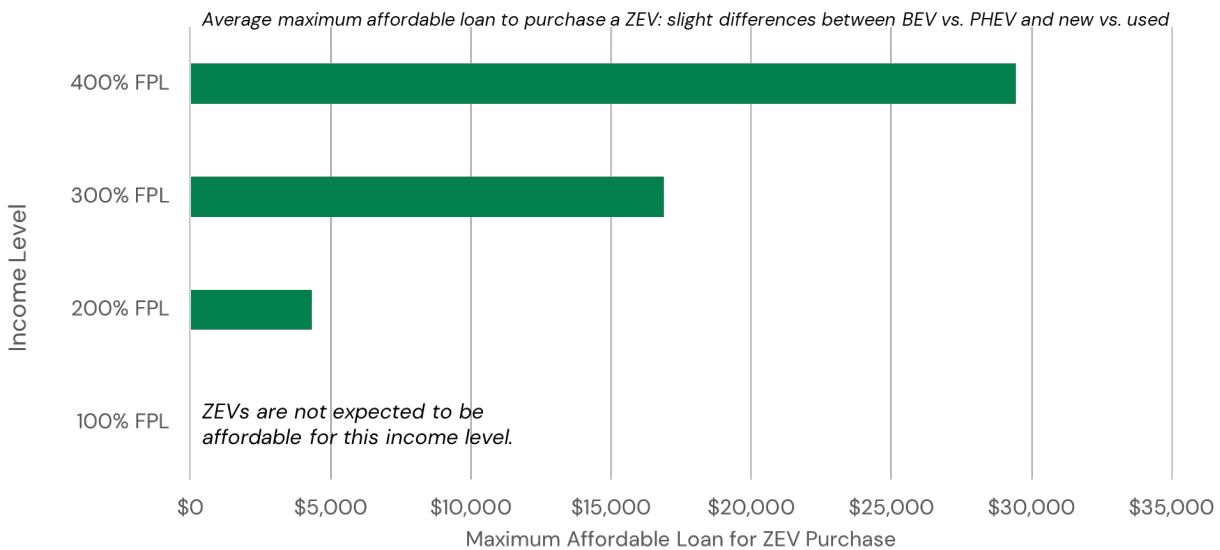
⁴² Available at: <https://www.sdccu.com/rates/vehicle-loan-rates/>.

⁴³ Available at: <https://maacproject.org/ev-access/>.

- San Diego average monthly vehicle mileage is assumed to be 900 miles, drawing from CARB’s EMFAC2021 inventory and the project team’s focus group discussions.
- Industry averages for EV energy efficiency (0.28 kWh/mile), PHEV electric mile utilization (50%), and PHEV gasoline fuel economy (28 MPG).
- San Diego County average costs of \$0.29/kWh for electricity and \$4.74/gallon for gasoline.
- A total of \$600 upfront cost to account for both DMV registration⁴⁴ and doc fee.⁴⁵
- Vehicle sales tax of 7.75% in the San Diego County.⁴⁶

Figure 9 provides a breakdown of the key results of this affordability calculation. The project team combined these results with ZEV market trends and median prices to determine gaps in affordability that could be addressed with incentives. One thing to note is that the results provided in Figure 9 do not include any upfront cost or payment at the point of sale, such as sales tax, registration and doc fees, down payment and other incentives offered at federal, state, or regional levels, which could alter the final affordability for ZEV ownership. For instance, if an applicant is eligible for the lower interest rates (e.g. 3.99% from the MAAC program), the maximum affordable loan can increase up to 6% from the current estimation.

Figure 9. Maximum Affordable Loan for ZEV Purchase by Annual Income (APR 2024).



This analysis, which is based on the current ZEV market landscape, makes it clear that ZEVs remain unaffordable for most low- and moderate-income residents. As illustrated in Table 3, two scenarios were evaluated to understand the gap in affordability at two income levels to purchase a new BEV priced at \$44,000, which is the MSRP of the cheapest ZEV model available (\$30,000 from Figure 6) and the price cap recommended by the project team (\$58,000 for sedan and SUV). If an applicant at 300% FPL income level purchases a new BEV, assuming the applicant is eligible for both the federal tax credits and the MAAC low interest rates, there is still a gap of \$21,500 to afford the purchase. For an applicant at or above 400% FPL, the existing gap is roughly \$9,500. During the focus group discussion, some community members

⁴⁴ As a reference, DMV registration fees are roughly \$516 for new vehicles and \$470 for used vehicles, calculated using DMV’s registration fee calculator. Available at: <https://www.dmv.ca.gov/portal/vehicle-registration/registration-fees/vehicle-registration-fee-calculator/calculate-my-fees/>.

⁴⁵ A fee that is charged by dealers to process vehicle’s paperwork. The average Doc Fee in California is roughly \$85. Available at: <https://caredge.com/guides/car-dealer-doc-fee-by-state>.

⁴⁶ Taken from <https://www.avalara.com/taxrates/en/state-rates/california/cities/san-diego.html#:~:text=What%20is%20the%20sales%20tax,and%20city%20sales%20tax%20rates>.

indicated that they normally would put a 20% down payment towards vehicle purchase.⁴⁷ While this may help to close the gap for applicants at or above 400% FPL to afford a ZEV of \$44,000 without any additional incentive (20% of the total cost of purchase is roughly \$9,500), anything above this price tag will still be too expensive for these households. Therefore, the project team recommends that SANDAG consider providing incentives for new ZEV purchases to income levels up to at least 400% FPL, including the option to increase the income cap up to 120% AMI, whichever threshold proves to be higher.

Table 3. A Sample Calculation to Demonstrate the Gap between New ZEV Affordability and Current Market Trends.

Item	Scenario I: 300% FPL, New BEV	Scenario II: 400% FPL, New BEV
MSRP	\$44,000	
Sales Tax	\$3,400	
Registration and Doc Fee	\$600	
Total Cost of Purchase	\$48,000	
Down Payment	0%	0%
Maximum Affordable Loan	\$19,000	\$31,000
Federal Tax Credit	\$7,500	\$7,500
Gap to Afford the Purchase	\$21,500	\$9,500

As the current affordability gap for new ZEV purchases remain significant for mid- and low-income households in San Diego, it reinforces the necessity of considering used ZEV in the program. The project team has conducted a similar affordability analysis for used BEV purchases, as shown in Table 4. Assuming the applicant is eligible for both the federal tax credits and the SDG&E⁴⁸ used EV credits, the gap to afford a used BEV of \$25,000 for an applicant at 300% FPL income level is roughly equal to \$1,500 and additional incentives shall be considered to encourage these households to consider used ZEVs in the future. On the other hand, while for applicants at or above 400% FPL income level, used ZEVs are financially feasible, for residents between 301%-400% FPL, additional incentives may still be necessary. Therefore, the project team recommends SANDAG consider providing incentives for used ZEV purchases to income levels up to at least 400% FPL as well.

Table 4. A Sample Calculation to Demonstrate the Gap between Used ZEV Affordability and Current Market Trends.

Item	Scenario I: 300% FPL, Used BEV	Scenario II: 400% FPL, Used BEV
MSRP	\$25,000	
Sales Tax	\$1,950	
Registration and Doc Fee	\$550	
Total Cost of Purchase	\$27,500	
Down Payment	0%	0%
Maximum Affordable Loan	\$18,000	\$30,000
Federal Tax Credit	\$4,000	\$4,000
SDG&E Used EV Credit	\$4,000	\$4,000
Gap to Afford the Purchase	\$1,500	\$0

⁴⁷ Based on Focus Group discussion with community members.

⁴⁸ Also known as the SDG&E Pre-owned Electric Vehicle Program, more information can be found on <https://evrebates.sdge.com/>

To verify income eligibility, different approaches may be used, including a completed and signed Internal Revenue Service (IRS) Form 4506-C and/or additional documentation providing complete details on household size and income. A notarized Household Income Affidavit and IRS Letter of Non-filing can also be provided if no tax has been filed. Third-party services such as Veri-tax⁴⁹ have also proved to be an effective and timely alternative for income verification.

Geographic Location

In addition to income levels, households that live in a LIDAC should also be eligible for ZEVIP. Residency in LIDACs can be verified using a valid California Driver's License or AB60 License. Disadvantaged communities can be determined using the U.S. Council on Environmental Quality's Climate and Economic Justice Screening Tool⁵⁰, as demonstrated in the San Diego Regional Priority Climate Action Plan⁵¹. Other tools, such as the California Environmental Health Screening Tool (CalEnviroScreen) 4.0, may also be used to crosscheck the location of LIDACs in the region or determine additional geographic eligibility in line with any future if the ZEVIP expansion plans.

Pathways to Program Eligibility

To enhance inclusivity, simplicity, and effectiveness of ZEVIP, two pathways to program eligibility are proposed. The first pathway uses income level to determine applicant eligibility while the second pathway relied on applicant's geographic location. While determining applicant eligibility based on geographic locations is efficient to capture environmentally disadvantaged communities, especially in the rural and unincorporated areas, relying solely on geographic locations may fail to capture low-income households that do not reside in LIDACs, especially considering not all cities in the San Diego region have designated LIDACs.⁵² Therefore, incorporating a two-pathway structure is recommended for the implementation of ZEVIP, and the following section shows more details regarding this structure. This approach ensures equitable access, maximizes program impact, and strategically allocates resources based on the specific economic realities of each market segment.

Incentive Distribution

Incentive levels and amounts should be carefully balanced, taking into consideration the program's goals, budget constraints, and the desired outcomes. Higher incentives may increase participation from LIDAC residents, addressing equity concerns and promoting adoption in underserved communities. However, given that the total funding amount may be fixed, a higher incentive amount could simultaneously limit the program's ability to reach a wider audience or achieve broader environmental goals. As such, it is crucial to determine the appropriate incentive amount that strikes a balance between promoting equity, encouraging ZEV adoption, and effectively managing budget constraints.

To define an appropriate incentive level, the project team considered the minimum threshold amount needed to encourage ZEV adoption, in addition to the gap analysis presented earlier. Scenarios where ZEV cost parity is not the only determining factor were also explored. The team found that even for applicants at 400% FPL who can afford the lower-end average ZEV price of \$44,000 (assuming 20% downpayment), the additional cost of purchasing and installing residential charging infrastructure poses a barrier. The most viable residential charging option, the Level 2 charger, typically costs between \$500 to \$700 (exact amount depends on the hardware, maxing at \$6500)⁵³. Installation fees in the San Diego region include a

⁴⁹ <https://www.veri-tax.com/>

⁵⁰ <https://screeningtool.geoplatform.gov/en/#8.2/27.602/-68.174>

⁵¹ <https://www.sandag.org/-/media/SANDAG/Documents/PDF/projects-and-programs/environment/climate/priority-climate-action-plan/pcap-appendix-d-list-and-map-of-lidacs.pdf>

⁵² Based on feedback received from the A2Z steering committee and regional stakeholders.

⁵³ <https://www.sdge.com/residential/electric-vehicles/install-electric-vehicle-charger>.

building permit with inspections fees of approximately \$230⁵⁴, and installation by a certified and licensed electrician, averaging \$1,426 with a maximum of around \$4,400⁵⁵.

While EV users could rely on public chargers instead, this can significantly increase the total cost of owning a ZEV. In California, residential charging costs about 18 cents per kilowatt hour (kWh), on average, with SDG&E offering a low rate of 13 cents per kWh during super off-peak periods⁵⁶. Conversely, public charging can cost 30 to 40 cents per kWh or more. This also comes with a “time burden,” i.e. the hourly wage loss associated with time spent at a public charging station, of about \$400 a month for an average American (likely higher for San Diego residents given its higher wage levels)⁵⁷. This reduces the savings potential that users can access with residential charging, making ZEVs less attractive, in addition to placing an unnecessary strain on the grid.

Even when ZEVs achieve cost-parity with traditional gas vehicles, other concerns including range anxiety, low confidence in the public charging infrastructure buildout (54% of Americans express serious doubts about it)⁵⁸, and a general tendency to underestimate the operating costs of gas cars, indicate the need for financial incentives to drive behavioral change among residents. These incentives can help bridge the knowledge gap, making cost benefits of ZEVs more apparent and encouraging more residents to switch.

Though some rebates already exist for residential chargers, they are limited in scope. PG&E’s Residential Charging Solutions program offers a \$700 rebate⁵⁹ and DOE’s Alternative Fuel Infrastructure Tax Credit covers 30% of the charging equipment cost up to \$1,000 per charger⁶⁰, both of which may be insufficient for the San Diego region. CC4A provides the most substantial rebate, offering \$2000 for a L2 charger; however, this is only available to households at or below 300% FPL⁶¹.

To align with the San Diego region’s ZEV adoption goals, the project team recommends that SANDAG consider a tiered incentive structure as shown in Table 5. The project team recommends setting a minimum threshold of at least \$2000. For residents who can afford a ZEV but need additional support to mitigate the costs associated with charging infrastructure, this minimum incentive is essential to encourage a behavioral shift towards adopting ZEVs. For income groups below 400% FPL, a higher threshold can ensure that the program can effectively address the needs of lower-income residents who face greater financial obstacles in transitioning to ZEVs.

Since the gap between current vehicle affordability and vehicle prices is significant, if the program aims to fully recover the disparity using the program alone, given the limited funding available, it may fail to serve a broad range of residents. Therefore, the project team recommends SANDAG consider setting the incentive level such that it’s sufficient for residents at or under 300% FPL or in LIDACs to afford an average ZEV available through the program. For residents at or below 300% FPL or those in LIDACs, an incentive amount of \$9,500 is suggested for the purchase of new BEVs . This amount aims to close a portion of the gap between current demonstrated affordability and vehicle prices. Households at or below 300% FPL can benefit from combining the \$9,500 incentive with other existing programs, such as the CC4A program’s \$12,000 incentive. When considering both programs together, the total additional incentives available to these households become \$21,500, which aligns with the affordability gap as presented in Table 3.

⁵⁴ <https://www.sandiego.gov/sites/default/files/dsdib187.pdf>.

⁵⁵ <https://avt.inl.gov/sites/default/files/pdf/EVProj/HowDoResidentialChargingInstallationCostsVaryByGeographicLocations.pdf>.

⁵⁶ <https://driveclean.ca.gov/electric-car-charging> // <https://www.sdge.com/residential/pricing-plans/about-our-pricing-plans/electric-vehicle-plans>.

⁵⁷ https://www.andersoneconomicgroup.com/wp-content/uploads/2022/04/EV_ICE_FuelingCosts_2ed4-5-22.pdf.

⁵⁸ <https://www.pewresearch.org/short-reads/2023/07/13/how-americans-view-electric-vehicles/>.

⁵⁹ <https://www.pge.com/en/clean-energy/electric-vehicles/getting-started-with-electric-vehicles/residential-charging-solutions-rebate.html>.

⁶⁰ <https://afdc.energy.gov/laws/10513>.

⁶¹ <https://ww2.arb.ca.gov/our-work/programs/clean-cars-4-all/about>.

For residents at 301-400% FPL, a standard rebate amount of \$2,000 is suggested for purchasing new BEVs to recover a portion of the costs while acknowledging that ZEVs become more affordable for these relatively higher-income households. The \$2,000 incentive amount is consistent with the standard rebate provided by CVRP⁶². Additionally, as previously mentioned, this amount can help offset the costs associated with charging, encouraging a behavioral shift towards adopting ZEVs.

For used BEVs, the \$2,000 incentive for households at or below 300% FPL is set to cover the affordability gap, which is \$1,500 (Table 4). This amount not only helps to bridge the gap between vehicle prices and available funds but may also address some of the additional costs associated with charging infrastructure. For households with income between 301% and 400% FPL, the \$500 incentive for used BEVs is derived using a proportional approach based on the incentives provided to lower-income groups.

Specifically, the incentive structure for new BEVs included a \$9,500 incentive for those at or below 300% FPL, compared to a \$2,000 incentive for those between 301% and 400% FPL. To maintain consistency and fairness in the distribution of resources, a similar ratio is applied for used BEVs. Moreover, this amount reflects the reduced need for support compared to lower-income groups, as these households are likely to have greater financial flexibility and potentially lower out-of-pocket expenses for charging infrastructure.

Given the environmental benefits (tailpipe emission reductions) of PHEV are roughly half of that of a BEV, the incentive level should also be halved, as presented below in Table 5. Because LIDAC residents account for roughly a quarter of the population in SANDAG, at least 25% of the incentivized purchases (number of incentives granted) should be reserved for Tier 2 applicants. Since the average incentive amount across BEV and PHEV for Tier 2 (\$7,125) applicants is roughly 5 times that for Tier 1 applicants (\$1,500), to meet the 25% target, at least 55% of the program funding should be allocated to Tier 2 applicants.

Table 5. Recommended Tiered Structure for ZEVIP Incentive Distribution.

Tier	Purchase Type	Group	Incentive Amount for BEV	Incentive Amount for PHEV
1	New	Standard Rebate for Residents at 301-400% FPL	\$2,000	\$1,000
	Used	Standard Rebate for Residents at 301-400% FPL	\$500	\$250
2	New	Increased Rebate for Residents at or under 300% FPL or Residence within LIDACs	\$9,500	\$4,750
	Used	Increased Rebate for Residents at or under 300% FPL or Residence within LIDACs	\$2,000	\$1,000

⁶² <https://ww2.arb.ca.gov/our-work/programs/clean-vehicle-rebate-project-cvrp/about>

Redemption Model

The project team recommends a point-of-sale structure for ZEVIP, which can be implemented through two different redemption models⁶³: an automatic price deduction at the eligible dealer (hereby referred to as Approach A) and applying for a discount before going in to buy or lease a car (Approach B).

Approach A is similar to the approach outlined in the latest IRS Clean Vehicle Credit point-of-sale program^{64 65}, which minimizes customer burden as there is no separate, program-specific application to complete. Dealers participating in ZEVIP must register with the program administrator using a regional online registration system, similar to the new IRS Energy Credits Online website. This platform will serve as the central hub for managing incentive transactions and allow dealers to verify the vehicle's eligibility. Consumers must ensure they meet the additional applicant requirements for the incentive. At the point of purchase, consumers must submit documentation to the dealer to provide complete details on household size and income, or residence information. If a resident claims the incentive but is later found ineligible by the system, they are responsible for repaying the incentive amount to the program administrator (SANDAG or third-party program administrator). Eligible dealers can choose to lower the cost of the vehicle by the corresponding incentive amount at the point of sale. Alternatively, dealers may offer consumers a cash equivalent of the incentive, providing flexibility in how the incentive is utilized. In either scenario, dealers will be reimbursed for incentive money, providing them with the discretion to pass the savings directly to the consumer or adjust the vehicle's price accordingly.

For **Approach B**, potential buyers are required to use an online platform to submit an incentive application before going to purchase their vehicle. During the application process, consumers must provide necessary documentation, including household size, income, residence, and information on the intended vehicle acquisition. A pre-qualification feature could be integrated to allow applicants to check eligibility before submitting a full application. The program administrator will then conduct a verification process to ensure that applicant and vehicle eligibility criteria are met. Upon approval, consumers will receive proof of approval (e.g., approval letter with an application number) or a voucher. At the point of sale, consumers present proof of their approved application to dealers who will review and confirm the approved application. Note that under Approach B, dealers will also need to register with program administrator, using a similar online system to report purchase activities. After completing the above process, dealers can either choose to lower the vehicle's costs at the point of sale or offer consumers a cash equivalent, similar to Approach A.

Under both models, dealers need to report clean vehicle sales to the program administrator through an online system. A streamlined process for dealers should be established to receive reimbursement for the incentive amount within a defined timeframe (e.g., 72 hours). Upon approval and verification of the reported sales, the administrator will promptly issue an ACH payment to the dealer for the corresponding incentive amount. The following paragraphs describe the benefits and drawbacks of both approaches. Table 5 also delves into the specific risks and implications for each stakeholder.

Approach A (Approval at Dealership)

Benefits

- Customers benefit from a streamlined process with no separate application required, making it easier and more convenient to receive incentives.

⁶³ A redemption model outlines the process by which consumers can claim and apply their incentives when purchasing a vehicle.

⁶⁴ <https://home.treasury.gov/news/press-releases/jy1783>

⁶⁵ <https://www.irs.gov/newsroom/topic-h-frequently-asked-questions-about-transfer-of-new-clean-vehicle-credit-and-previously-owned-clean-vehicles-credit#:~:text=For%20dealers%3A%20No.,made%20that%20notes%20such%20election.>

- Dealers assist in collecting documentation from customers, which streamlines the process and reduces this administrative burden on program administrators.

Drawbacks

- Official verification of applicant eligibility occurs after the incentive is provided, with a risk of ineligible consumers receiving incentives.
- Additional funds or appropriate management may be required to cover potential losses from fraudulent or erroneous claims.
- Success relies on the willingness and capability of dealers to accurately collect customer documentation and report sales.

Approach B (Pre-Approval through Application)

Benefits

- Pre-application process allows for upfront verification of applicant eligibility, reducing the risk of fraudulent claims.
- Administrators have better control over incentive allocation, as funds are disbursed based on approved applications.
- Dealers benefit from a streamlined process, as they only need to confirm pre-verified applicants' eligibility, reducing administrative burden and speeding up transactions.
- Gathering applicant information during the application process easily and efficiently provides administrator(s) with valuable data for program evaluation and refinement.
- Pre-application process allows for targeted outreach to eligible individuals, maximizing program impact.

Drawbacks

- Pre-application process may deter some customers who may prefer a more streamlined experience.
- Customers must wait for application approval before receiving incentives, potentially delaying ZEV purchases. This can be particularly challenging for lower-income residents who may need to purchase new vehicles quickly due to necessity, such as a vehicle breakdown. In addition, it is possible that their pre-approved vehicle may not be available at the dealership during their visit, which may further delay the process.
- Program administrators must manage the pre-application process, including verification and approval steps (i.e., higher administrative burden on SANDAG/third-party administrator).
- Potential higher initial costs for developing and implementing an online application platform and verification processes for applicants (in addition to the online registration system for dealers).
- Success relies on the willingness and capability of dealers to accurately report sales.

Table 6. Potential Risks by Approach and Stakeholder.

	Approach A (Approval at Dealership)	Approach B (Pre-Approval through Application)
Program Administrator	Depends on dealers for initial applicant eligibility checks, increasing the risk of fraudulent or erroneous claims if not done accurately.	Increased workload for managing the pre-application process and verification.
	Additional funds/appropriate management may be required to cover potential losses from fraudulent or erroneous claims.	Potential higher initial costs for developing and implementing an online application platform and verification processes.
Dealers	Responsible for collecting documentation for applicant eligibility, adding to administrative workload.	Responsible for reviewing and confirming the approved application through the online registration system, potentially contributing to administrative workload.
	Reduced cash flow if incentives are not immediately reimbursed by program administrator.	Delayed reimbursement could affect dealer cash flow until incentives are received.
Customer	Dependence on dealer cooperation for initial coordination and verification.	Longer wait times for incentive receipt due to pre-application verification process.
	Detailed documentation for eligibility verification could complicate the application process.	Detailed documentation for eligibility verification in addition to the use of the online application platform could complicate the application process.
	If a customer claims the incentive but is later found ineligible, they are responsible for repaying the incentive amount, adding financial risk and potentially inducing anxiety/hesitation towards using the ZEVIP.	

After a thorough comparison between the two redemption models, Approach B offers a more efficient and secure incentive distribution process. The pre-application process ensures upfront verification of applicant eligibility, which could support more efficiency for the dealership and customer at time of purchase. This efficiency benefits all parties, making processes smoother for administrators and less burdensome on participating dealers. Despite the initial setup costs and managing the verification process, the streamlined operations and better control over incentive allocation may lead to reduced administrative burden over time, especially in comparison to Approach A where official verification occurs after incentive distribution, potentially leading to more administrative issues down the line (e.g., fraudulent claims, collection of reimbursement).

The potential delay in customers receiving the incentive due to the pre-application verification process is balanced by the assurance that the incentives will be received only by eligible individuals, thus avoiding the frustration and inconvenience of later repayment. Based on conversations with existing program managers, the prequalification verification time has significantly shortened (e.g., 3-5 days), which could relieve concerns regarding administrative delay. Moreover, insights gleaned from the focus group discussions underscore the preference for an upfront discount obtained through an online pre-application process, which aligns with the features of Approach B.

Program Implementation

This section summarizes the project team’s recommendations to implement ZEVIP based on the program components discussed earlier. These recommendations have been tailored based on existing conditions in the San Diego region and span every element from the beginning to the final launch of the program, including program creation, budgeting and financial control, dealer engagement, outreach and education, and program launch.

Program Creation

In order to implement a program that benefits community members, SANDAG can work with its regional partners to continue gathering community feedback regarding their needs, opinions on ZEVs, vehicle costs, and awareness of and opinions on existing incentive programs. This work has been initiated *through Task 2. Community Engagement and Social Equity* and will need to continue throughout the program launching phase. In addition, conducting interviews with experts and stakeholders involved in ZEV incentive programs is also critical to refresh SANDAG’s understanding of best practices, policies, and structures of ZEV incentive programs—these types of interviews were also conducted as part of *Task 1. Existing Conditions Assessment*, although SANDAG and ZEVIP staff may benefit from continued interviews further into project implementation and operation.

While the project team has recommended that SANDAG implement a third-party administration model, it is critical that SANDAG remains closely involved in the implementation of the ZEVIP, even after a third-party administrator has been brought on board. SANDAG is recommended to first assess the program staffing needs and explore the possibility of integrating a mix of SANDAG staff and third-party administrator staff to fulfill various roles within the program management team. SANDAG can assign an internal program manager to lead the direction of ZEVIP, overseeing all program divisions and implementation phases. Staff roles may include program manager(s); financial controller responsible for budget management, fund allocation, and financial reporting; an operations division for website and platform management; a community care division for supporting applicants; a government liaison officer to facilitate communication with relevant government agencies; and a point-of-contact for dealerships. Based on interviews with EV program managers, staffing levels from a third-party administrator may range from 5 to 20, depending on program size and expected number of applicants. The project team also recommends SANDAG to consider a mix of full-time staff and interns to support program activities.

In addition, establishing an Advisory Board that comprises key stakeholders, experts, and community representatives to provide strategic guidance would also be helpful. SANDAG and the third-party administrator may conduct regular meetings with this Advisory Board to discuss program performance, challenges, and future enhancements. It is also recommended that regular communication channels between SANDAG and key regional partners be established, such as the County and the Air Pollution Control District (APCD) to ensure ongoing coordination and alignment with regional goals and initiatives.

SANDAG and the third-party administrator are encouraged to prioritize providing comprehensive technical assistance to consumers to help them understand eligibility criteria and the documentation requirements to participate in the program effectively. Utilizing various communication channels is also recommended, such as online and print resources, informational materials in multiple languages, and dedicated helplines to ensure accessibility for all participants.

Throughout the program implementation, SANDAG and the third-party administrator are also advised to establish robust data security measures for applicant information storage, sharing, and purging, and adherence to relevant privacy regulations.

Budgeting and Financial Control

Securing one or multiple funding sources is essential for ensuring a continuous flow of funding, thereby providing program certainty to participants and allowing for its long-term success. This may involve establishing partnerships with governmental agencies, securing grants, or identifying sustainable revenue streams. Depending on the funding source, SANDAG may need to establish a budget reporting system to comply with reporting requirements for funding agencies or regulatory bodies.

Another critical component of budgeting and financial control is to understand the expected demand for incentives by analyzing factors such as the number of potential applicants, historical trends, and other relevant information. Historical data from similar programs can provide insights into the actual uptake of incentives, allowing for a more accurate estimation of potential demand and administrative support needed for ZEVIP. In addition to existing program data, SANDAG may also consider examining local conditions and variables that might influence the demand for incentives. These factors could include regional economic conditions, population demographics, and specific characteristics of the target area.

Once the expected demand has been evaluated, SANDAG can work towards tailoring administrative expenses. Table 6 provides examples of EV program costs, including administrative expenses and incentive allocations. For the CVRP, costs have been recorded since the program's inception as well as for certain fiscal years (FY)⁶⁶. Overall, administrative expenses for these multi-million dollar programs range from 3%–8%, reflecting costs associated with components such as labor, outreach, rebate processing, operations, and project management.

According to interviews with EV program managers, administrative expenses account for 6%–15% of the overall program budget. Table 6 presents some published administrative costs from existing programs. Since ZEVIP necessitates extensive outreach efforts, allocating resources toward the higher end of the spectrum (up to 15%) may be advisable. The project team also recommends a cash-on-hand approach to ensure that liquid funds are readily available to cover the costs of incentives and administrative processes. A cash-on-hand approach can also expedite payments and enhance program success.

Table 7. Examples of Existing EV Incentive Program Costs.

Program	Total Funding (\$)	Admin (\$)	Percent Admin (%)	Notes
CVRP Total (Up to Date)	1,603,214,513	92,036,299	6%	Administration includes outreach expenses.
CVRP FY 2015-2016	133,000,000	5,532,800	4%	Administration includes rebate processing fees covering labor and expenses for outreach, operations, analysis, transparency, and project management.
CVRP FY 2014-2015	122,360,000	5,090,176	4%	
CVRP FY 2013-2014	84,550,000	2,950,800	3%	
CVRP FY 2012-2013	36,500,000	2,190,000	6%	
CVRP FY 2011-2012 ¹	15,000,000	492,463	3%	
CVRP FY 2010-2011 ¹	7,000,630	430,707	6%	
Clean Cars 4 All (2023 Cumulative Statistics)	231,000,000	10,600,000	5%	Administration refers to funds provided to intermediaries that use part of the funding to cover

⁶⁶ <https://cleanvehiclerebate.org/en/program-reports>

Program	Total Funding (\$)	Admin (\$)	Percent Admin (%)	Notes
				the administrative costs associated with distributing incentives, implementing projects, or tracking and reporting data.
Washington State Department of Commerce EV incentive program (2023)	50,000,000	4,000,000	8%	Cost estimates are based on solicitation for the implementation of the incentive program. In addition to administration and incentives, the solicitation includes approximately \$750,000 for program design, including public engagement.

¹ As reported in [CVRP FY 2012-2013](#)

Dealer Engagement

The role that dealers may play in the implementation of ZEVIP is critical. To involve dealers in the ZEVIP program, SANDAG and the program administrator are encouraged to develop a comprehensive engagement strategy, potentially involving the formation of an outreach team. This includes researching new and used dealerships in the county to compile targeted lists, focusing on those with significant inventories of new and used EVs. Engagement efforts can utilize multiple channels such as emails, phone calls, and in-person visits to raise awareness about the program's benefits. In particular, conducting listening sessions with dealerships can be instrumental in understanding the primary barriers they encounter with EV adoption and program participation. These sessions may also provide insights into the most effective ways to communicate program details to dealerships. Each dealership's unique perspective, shaped by its local community and customer base, will contribute to a deeper understanding of challenges related to EVs and available EV incentives.

Outreach materials can emphasize developing key messages and selecting effective messengers to effectively communicate program details and benefits, including streamlined reimbursement processes, increased sales opportunities through the promotion of ZEVs, and marketing support from the program. To ensure dealerships are well-prepared to support the program, comprehensive training sessions are recommended to cover ZEVIP details, eligibility requirements, and the reimbursement process for incentives. Dealers can also receive informational toolkits containing brochures, posters, and digital resources to aid in educating potential EV buyers and promoting program awareness at the point of sale. Metrics may be utilized to track the effectiveness of dealer outreach activities, including how many dealerships the outreach team has contacted, trained, and enrolled into the point-of-sale program. Through these efforts, the program administrator can connect with dealerships who are familiar with EV incentive/rebate programs, educate those that are not, and engage and train dealerships on specific incentives available to customers within the state.

To effectively implement the program, the program administrator is recommended to establish a clear dealer enrollment process to qualify for ZEVIP and establish a network of dealers that would agree to pass along the full discounted prices to eligible program participants. SANDAG and the program administrator are encouraged to develop criteria for creating an authorized dealer network that ensures a positive customer experience and reliable and equitable access to ZEVs (e.g., EV inventory levels, pricing

transparency, and commitment to customer satisfaction). This is important as the relationship between consumers and dealerships will greatly impact the program's performance and thus, ZEV adoption^{67,68}.

Furthermore, contractual agreements are essential for maintaining integrity and trust within the ZEVIP program. These agreements ensure that all parties involved understand and comply with program rules, thereby preventing practices that could erode trust and ensuring commitment to fair pricing and transparency in transactions. They can specify the documentation required for reimbursement, reimbursement timelines, and any conditions or penalties for non-compliance. Additionally, these agreements may include provisions that discourage MSRP markups and encourage dealers to pass along full discounts to eligible participants. It may be beneficial to consider implementing a reporting element where dealers are encouraged to voluntarily share sale prices and other transaction details with the program administrator. This reporting mechanism could help verify that incentives are applied correctly and support adherence to program guidelines. Such measures aim to foster a cooperative relationship between dealers and the program, ensuring that incentives are distributed fairly and effectively.

Public Outreach and Education

As a program that requires extensive outreach and education efforts, SANDAG should work with the program administrator to design targeted outreach strategies, especially focusing on LIDAC residents. Additional educational events to create awareness and interest should also be considered. Program outreach staff can integrate past participants and success stories into marketing to show ZEV possibilities and build trust.

Collaborating with CBOs to provide financial literacy workshops and helping applicants understand the overall costs of ZEV ownership may also be an effective strategy. Part of this effort should also focus on clarifying that the ZEVIP is designed to reduce the cost of EVs and encouraging vehicle buyers to report any issues they encounter—whether related to the program administrator, dealerships, or other program partners—to ensure transparency and accountability.

Program Launch

The project team recommends a three-step approach to launch ZEVIP. The process is initiated with a comprehensive launch plan, including press releases, social media campaigns, and community events to create awareness to LIDACs. SANDAG and the program administrator can create and publish how-to-apply guides on YouTube and other platforms.

In addition, it is important to establish a system for continuous monitoring of program performance using data and performance metrics. The project team recommends a comprehensive list of performance metrics, as shown in Table 7, for SANDAG to consider.

Lastly, it is important to implement a feedback mechanism for vehicle buyers and dealerships to provide insights into the ZEVIP process and identify areas for improvement. As discussed earlier, given the dynamics trends of the local ZEV market SANDAG may consider establishing a mechanism for regular updates to the list of eligible vehicles/applicants based on market trends, appropriate cap values based on evolving prices for new and used cars, technological advancements, and changes in existing incentive programs.

⁶⁷ Matthews, L., Lynes, J., Riemer, M., Del Matto, T., & Cloet, N. (2017). Do we have a car for you? Encouraging the uptake of electric vehicles at the point of sale. *Energy Policy*, 100, 212–222. <https://doi.org/10.1016/j.enpol.2016.10.001>

⁶⁸ Zarazua de Rubens, G., Noel, L., & Sovacool, B. K. (2018). Dismissive and deceptive car dealerships create barriers to electric vehicle adoption at the point of sale. *Nature Energy*, 3, 501–507. <https://www.nature.com/articles/s41560-018-0152-x>

Table 8. Recommended ZEVIP Performance Metrics.

Metrics	Actions
Program Website Traffic	<ul style="list-style-type: none"> • Monitor the number of visits to the program's public application portal. • Monitor the number of visits to the program's application via a CBO-designated portal or other source-specific links to measure the success of community outreach and engagement efforts.
Application Completion Rates	<ul style="list-style-type: none"> • Measure the percentage of initiated applications that are successfully completed, which can help to assess the user-friendliness and efficiency of the application process.
Participation Rates	<ul style="list-style-type: none"> • Measure the number of residents who participated in the incentive program by purchasing or leasing a qualifying vehicle. • Compare the program's participation rates with the overall trend of ZEV adoption in the region, regardless of whether those ZEV purchases were incentivized by the program, to assess the program's reach.
Market Share	<ul style="list-style-type: none"> • Analyze whether the incentive program has contributed to an increase in the market share of ZEVs or targeted vehicle types within the region and individual LIDACs. This will be achieved through comparing the ZEV market share before and after the implementation of the program.
Sales or Lease Volume	<ul style="list-style-type: none"> • Evaluate the total number of vehicles sold or leased under the incentive program. • Compare with pre-incentive levels to understand the program's impact on transaction volume.
Distributed and Remaining Funding	<ul style="list-style-type: none"> • Track funding distributions, which provides insights into the financial impact of the program and budget management, and ensures funds are allocated effectively. • Monitor remaining funding available, which may help to make informed decisions on program adjustment and future budget planning.
Demographic Data of Applicants	<ul style="list-style-type: none"> • Collect data on the demographics of applicants, including income levels, residency types, and geographic locations, which can provide insights into the program's reach and effectiveness in targeting specific populations.
Equity Outcomes	<ul style="list-style-type: none"> • Track zip code and location of ZEV incentive recipients. • Calculate percentage and total value (\$) of incentives distributed in LIDACs. • Identify areas with high or low participation, aiding targeted outreach efforts.
Customer Satisfaction	<ul style="list-style-type: none"> • Gather feedback from participants through immediate and/or follow-up surveys (e.g., 6 months later) to gauge satisfaction and identify any long-term challenges.

Metrics	Actions
	<ul style="list-style-type: none">• Identifies areas for improvement and ensures a positive user experience.
Environmental and Climate Benefits ⁶⁹	<ul style="list-style-type: none">• Assess the environmental impact of the program by estimating the reduction in greenhouse gas emissions and improvements in air quality.

⁶⁹ This assessment is intricately tied to Sustainable Communities Strategy (SCS), where methodologies will be developed to quantify emissions reductions, including incentives for secondary (used) ZEVs.

Next Steps

The proposed ZEV Incentive Program (ZEVIP) aims to reduce greenhouse gas emissions and improve air quality, while focusing on equity and benefits for LIDACs in the region. The tiered incentive structure for new and used vehicles, with standard and additional incentives for low-income and historically under-resourced communities, provides flexibility and inclusivity. This document outlined the main characteristics recommended for the ZEVIP, including program administration approaches, incentive type and structure, eligibility criteria, incentive levels, performance monitoring metrics, and program implementation. Table 8 summarizes the recommended approach from each section to be examined in the implementation plan.

Table 9. Overview of Recommended ZEVIP strategy.

Section	Components	Recommended approach
Program Administrative Components	Administration Model	<ul style="list-style-type: none"> Third-party administered program: leverage expertise, streamline operations, enhance stakeholder responsiveness, mitigate liability risks.
	Incentive Type	<ul style="list-style-type: none"> Point-of-sale rebates: immediate impact, equitable access, and affordability.
	Incentive Fund Distribution	<ul style="list-style-type: none"> Needs-based model: direct incentives to those requiring additional support for ZEV adoption.
Vehicle Eligibility	Vehicle Eligibility	<ul style="list-style-type: none"> Consider new and used vehicles, BEVs and PHEVs to broaden access. Consider used vehicles within battery warranty to ensure reliability and performance. Consider MSRP limits to ensure affordability, with periodic review for market changes (suggested: \$58,000 for sedans/SUVs and \$69,000 for vans/pick-ups). For used vehicles, consider using sale price cap (suggested \$30,000) to reflect market conditions accurately.
Applicant Eligibility & Incentive Level	Applicant Eligibility	<ul style="list-style-type: none"> Income-based Pathway: Use federal poverty Level (FPL) as the primary measure, targeting households with income up to 400% FPL. Geographic-based Pathway: residents within LIDACs
	Incentive Level	<ul style="list-style-type: none"> Two-tiered structure and provide an increased rebate amount for BEV purchase due to higher environmental benefits. The Tier 1 incentive amount is set at \$1,000 for PHEV and \$2,000 for BEV. Provide an increased rebate amount (\$3,750 for PHEV and \$7,500 for BEV) for applicants of income level at or below 300% or LIDAC residents. Reserve at least 55% funding for applicants eligible for increased rebate amount.
Redemption Model	Redemption Model	<ul style="list-style-type: none"> Pre-application for approval required before purchase, ensuring upfront verification of applicant eligibility and streamlined administrative process.
Program Implementation	Budgeting and Financing Control	<ul style="list-style-type: none"> Secure one or multiple funding sources. Allocate administrative expenses (up to 15%) to account for extensive outreach needs.
	Dealer Engagement	<ul style="list-style-type: none"> Develop comprehensive engagement strategy for dealerships highlighting the benefits of the program. Establish clear dealer enrollment criteria and contractual agreements for transparency and compliance.
	Public Outreach and Education	<ul style="list-style-type: none"> Design targeted outreach and educational strategies, including financial literacy workshops in collaboration with CBOs. Focus outreaching efforts on LIDACs.
	Program Launch	<ul style="list-style-type: none"> Execute comprehensive launch plan with press releases and social media campaigns. Develop a three-step approach: comprehensive launch plan, educational content creation (e.g., how-to-apply guides), and implementation of monitoring and feedback mechanisms for effective program engagement.

The project team will continue working with SANDAG and stakeholders to gather community feedback through outreach, education, and engagement leading up to program launch. Program components such as eligibility criteria will be further evaluated and refined based on community feedback, expert input, alignment with program goals, and funding availability. SANDAG, its partners, and the project team will also continually monitor and address any additional factors that arise to ensure the program remains inclusive and responsive to the needs of diverse communities.

In addition, a more granular and specific implementation plan, outlining step-by-step processes, timelines, and coordination mechanisms will also need to be developed to enhance clarity and efficiency in program execution. This includes specification of key elements such as application procedures, verification protocols, and outreach strategies. Lastly, the project team will also develop methodologies to quantify the GHG impact of ZEVIP, especially the benefits from increased used EV adoption in the region.