



January 10, 2024

Hon. Maria Elena Durazo
Senator, 26th District
1021 O Street, Suite 7530
Sacramento, California 95814

Dear Senator Durazo:

On August 17, 2023, your office requested that we complete a report regarding ways in which the state can mitigate regressive impacts of its climate policies. Specifically, you raised concerns that policies designed to reduce greenhouse gas (GHG) emissions can increase costs for lower-income Californians. As we discussed and agreed with your staff, given time and workload constraints, this letter we have prepared in response to your request focuses on how the state has sought to address equity in two key climate policy areas—clean vehicle programs and customer-side energy programs. We also note that the findings and issues we highlight regarding these programs likely are not comprehensive, but reflect the information we were able to gather in the time available.

This letter includes three sections. We begin with a background section that summarizes overall research findings and policy issues regarding how climate change and climate-related policies affect lower-income populations. We follow this with two sections discussing clean vehicle programs (including vehicle rebates and zero-emission vehicle [ZEV] infrastructure) and energy programs (including residential decarbonization and rooftop solar energy programs). In each of these sections we: (1) summarize existing research related to vulnerable populations; (2) describe existing state programs in these areas that are designed to promote equity or that have important equity implications, including key findings and takeaways about their current status; and (3) highlight key equity-related policy considerations for you to bear in mind as you contemplate these programs and future actions in these areas. We hope these considerations can help inform your approach in assessing whether these programs are serving their intended purposes effectively, identifying how the Legislature might want to prioritize its various goals regarding costs for low-income households and GHG reductions, and determining what future actions might be merited.

Background

Lower-Income Communities Disproportionately Affected by Climate Change Impacts...

California is already experiencing the impacts of climate change, including worsening wildfires, drought, and extreme heat. Lower-income residents are more impacted by these effects in various ways. For example, lower-income residents who may not be able to afford air conditioning therefore face greater health risks due to extreme heat. Lower-income households

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also may have greater difficulty adapting their homes to climate change by purchasing air filters to protect against wildfire smoke and procuring backup energy generators. In addition, research has found racial disparities in vulnerability to climate change effects—people of color are more likely to experience [adverse health outcomes](#) due to climate change, such as related to mortality, respiratory and cardiovascular disease, mental health, and heat-related illness. These disproportionate effects highlight the importance of California’s efforts to mitigate both the magnitude and impacts of climate change.

...And Air Pollution. Communities with larger proportions of lower-income residents and people of color also are disproportionately exposed to air pollution. The largest category of this air pollution is from vehicle exhaust—which is also the largest source of California’s GHG emissions—and a major source of health-harming particulate matter, volatile organic compounds, and other air pollutants. Studies show that lower-income households and people of color are [more likely to live near heavy transit corridors](#), meaning they have greater exposure to this air pollution. These factors often are historically and/or economically linked. For example, historic redlining practices pushed many Black residents to live in areas [closer to transit corridors](#), and [gentrification](#) may displace lower-income people and people of color into neighborhoods that may be closer to highways or heavy industry. Because of the overlap between air pollutants and GHG emissions, policies intended to meet California’s overall climate goals have the potential to also result in local air quality improvements, depending on their design and focus.

Certain Climate Policies Add Costs that Disproportionately Burden Lower-Income People. Policies that are designed to reduce GHG emissions often have the effect of increasing costs. For example, the state’s cap-and-trade program currently adds about \$0.27 to each gallon of retail gasoline because gasoline manufacturers choose to pass their compliance costs on to consumers. Such cost increases are more likely to disproportionately burden lower-income households because they spend a greater portion of their income on energy and transportation costs.

New Technologies That Reduce Emissions Often Are More Difficult for Low-Income Californians to Access. Some clean energy technologies, such as ZEVs and energy-efficient heating and cooling systems, can be more challenging for lower-income people to access. This is due to a variety of factors, including (1) high cost; (2) housing status, as those who rent may find it more difficult or impossible to upgrade their home energy systems or charge electric vehicles at home; and (3) limited dissemination and availability of information about these new technologies.

State Has Undertaken a Number of Efforts to Address These Issues, Support Equity in Climate Policies. The state has established numerous policies and programs designed to address issues such as the disproportionate impacts of climate change, the disparate cost burden of certain climate change policies, and the accessibility of climate-friendly technologies. The state’s primary focus in this area has been rebate and incentive programs designed to drive down costs for lower-income people. We describe major programs designed to address these goals in more depth below.

CLEAN VEHICLES

About 40 percent of California's GHG emissions come from transportation. In addition to producing GHGs, gas-powered vehicles emit toxic air pollutants known to harm human health. The state has taken a number of actions to address these issues, including a multifaceted effort to promote the adoption of ZEVs. This includes large allocations of funding to incentive programs intended to help consumers purchase both light- and heavy-duty ZEVs, as well as funding to support the development of vehicle chargers. Under the Advanced Clean Cars II rule passed by the California Air Resources Board (CARB) in 2022, by 2035, all new passenger cars, trucks, and SUVs sold in California must be ZEVs. Below, we first highlight overarching equity-related research findings related to transportation and clean vehicles, then discuss two categories of existing state efforts in this area: (1) rebate programs to help lower-income Californians and small business owners access cleaner vehicles, and (2) the primary state program to build out the statewide network of ZEV infrastructure such as chargers.

Key Transportation and Clean Vehicle-Related Research Findings:

- Lower-income people [spend a greater portion of their income](#) on transportation costs compared to moderate- and higher-income people. These costs are associated with purchasing or leasing a vehicle, conducting vehicle maintenance, purchasing gas, and taking public transit. Specifically, research conducted in 2023 found that households in the lowest quintile of income groups studied spent 30 percent of their after-tax income on transportation, compared to 12 percent for the earners in the highest income-earning quintile.
- Lower-income people are being [pushed out to further suburbs and driving longer distances](#) due to the rising costs of housing. This can further exacerbate existing transportation cost disparities.
- Lower-income people and communities with higher concentrations of [people of color](#) are more likely to experience [greater air pollution](#), exacerbated from vehicle exhaust.
- Heavy-duty [trucks account for](#) 50 percent of statewide diesel particular matter emissions and 45 percent of statewide nitrogen oxide emissions, both of which are harmful to human health.
- Nationally, homeowners are [three times more likely](#) to own a ZEV compared to renters.
- ZEV owners in California are more likely to be [white and high income](#).
- Public ZEV chargers more likely to be located in [affluent communities](#).

Clean Vehicle Rebate Programs

The state has two primary programs to expand access to ZEVs for lower-income households, both of which primarily provide rebates for clean vehicle purchases: Clean Cars 4 All (CC4All) and Low-Income Financing Assistance. A third program, the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP), provides rebates intended to speed adoption of clean

heavy-duty vehicles which can help lessen air pollution impacts on low-income communities. We discuss each of these three programs below.

Clean Cars 4 All. CC4All is the state's hallmark equity program designed to make ZEVs accessible to lower-income Californians. The program offers rebates to low-income households in select California air districts to replace older, high-polluting vehicles and purchase a ZEV or plug-in hybrid. CC4All also provides a charging gift card in some cases. It is overseen by CARB and administered by five selected air districts in which residents are eligible for the funding. (A new statewide version of the program is expected to launch in 2024.) From when the program was established in 2014 through June 30, 2023, CC4All funded 16,348 vehicle replacements. A total of \$436 million has been allocated to the program since its inception, initially from the Greenhouse Gas Reduction Fund (GGRF) and more recently from the General Fund. This total includes large one-time funding increases provided in 2022-23 and 2023-24 as part of a ZEV budget package, and CC4All is scheduled to receive another \$45 million GGRF allocation in 2024-25. Of the allocated amount, \$122 million had been spent as of June 2023, with CARB planning to spend the remainder over the next few years.

Key Program Findings:

- ***Strong Stakeholder Support.*** The program is widely supported by equity advocates who communicated to us that they view this as an important piece of the state's efforts to expand access to ZEVs and reduce GHGs from vehicles.
- ***New Statewide Program Will Widen Access, but Funding More Limited.*** The program has been available only to residents who live in one of five of the state's 35 air districts. While these districts include some of the most polluted regions of the state, certain air districts in other regions also are out of attainment with federal air quality standards and contain high proportions of lower-income people but have not yet had access to this program. The forthcoming statewide version of the program is designed to address this issue, but it will have less available funding compared to the existing, more limited program.
- ***Potential Inconsistencies in Program Administration.*** The program's administration varies by air district. Equity advocates have argued that certain districts' programs are managed more effectively than others, though limited information is available about this claim. San Diego has yet to formally implement the program despite being one of the five target regions eligible for funding.
- ***Limited Scrappage Compensation May Deter Potential Participants.*** In some cases, the compensation CC4All provides for vehicle scrappage does not match the scrapped vehicle's value on the used market. This may have the effect of deterring some people from utilizing the program. CARB is planning to hold workshops on this issue in 2024.

Low-Income Financing Assistance. The Financing Assistance program provides low-interest loans and rebates for lower-income people to purchase a new or used ZEV or plug-in hybrid. Financing Assistance also provides grants for charging installation or charge

cards. Californians with incomes at or below 300 percent of the federal poverty level (FPL) are eligible to participate. Unlike CC4All, this program does not have a vehicle retirement requirement. Consumers can pair CC4All and Financing Assistance together to maximize their state rebate amount. CARB's 2023-24 Funding Plan adopted last November allocated \$28 million to the Financing Assistance program, including \$12 million from the General Fund and \$16 million from GGRF. (This is from a total of \$80 million the Legislature appropriated to CARB in 2023-24 for statewide equity transportation programs.) The board has spent \$33 million on vehicle assistance through the program thus far, primarily from GGRF with some General Fund. At this time, there is no planned allocation past 2023-24. Financing Assistance has been consistently oversubscribed—in 2023, the program closed applications in June (halfway through the program year) because it ran out of funding to allocate.

Key Program Findings:

- ***Different Programs and Requirements Leads to Confusion.*** Equity advocates have reported that some applicants find it difficult to make sense of the various rebate programs. To help address this issue and streamline the programs, in 2023, CARB elected to use one administrator for both Financing Assistance and CC4All.

In addition to these light-duty ZEV incentive programs, CARB also administers one major program designed to promote heavy-duty ZEVs.

Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project. The HVIP program, administered by CARB, provides point-of-sale vouchers to fleet owners for the purchase of ZEV trucks and buses. HVIP is the primary heavy-duty ZEV incentive program in the state. In recent years, to promote equity and prioritize smaller fleets that may be less capable of making the ZEV transition, CARB established a new pilot program within HVIP that limits eligibility to fleets with 50 vehicles or fewer. HVIP has primarily received funding from GGRF, with some General Fund through specific ZEV budget packages. The *2023-24 Budget Act* allocated \$80 million of GGRF to HVIP, specifically for drayage trucks. Recent budget agreements also have specified legislative intent to provide \$133 million of additional funding to HVIP for drayage trucks spread across 2024-25 through 2026-27. As of September 2023, CARB has dispersed \$409 million for a total of 7,815 vehicle vouchers over the lifetime of the program.

Key Program Findings:

- ***New HVIP Requirements Increase Focus on Equity.*** As compared to larger entities such as corporations or municipalities, small fleet owners are less likely to be able to bear the large up-front costs of electrification. As such, CARB's recent decision to prioritize all HVIP funding for small fleets will facilitate both the overall ZEV transition and help these business owners. These owners likely have lower overall incomes and available resources than owners and shareholders of larger companies.
- ***Focus on Drayage Trucks Will Support Air Quality in Burdened Communities.*** Drayage truck exhaust is responsible for an outsized air pollution burden, particularly in communities near ports and highways. As such, CARB's funding plan requirement

that the full \$80 million HVIP amount go towards incentives for ZEV drayage trucks could help achieve air pollution reductions in heavily polluted communities.

Key Equity Considerations for Clean Vehicle Rebate Programs:

- ***Simplifying Programs.*** Feedback from stakeholders indicates that different applications and requirements across programs can make them confusing and difficult to access for some eligible potential applicants. CARB has taken some steps to address this issue, such as using the same administrator for Financing Assistance and CC4All. The Legislature may want to track this issue and consider whether legislative intervention might be merited to ensure eligible people can access funding without undue burdens. The Legislature could consider lumping all incentive funding into one program with one application. It could also consider working more directly with car dealers to reduce administrative burdens. For example, in Norway, all government incentives for purchasing a ZEV are provided in a lump sum at the point-of-sale through car dealerships.
- ***Funding and Allocations.*** Funding for these programs is not consistent across years and is dependent on available state General Fund and GGRF revenues. If it desires a more sustainable and predictable stream of funding for these programs, the Legislature could consider identifying alternative funding sources. It could also consider specifying its preferred priorities for program spending in statute rather than deferring to CARB to determine how to allocate equity funds between CC4All and Financing Assistance.
- ***Light- vs. Heavy-Duty.*** Markets for both light- and heavy-duty vehicles are in early stages, though light-duty vehicles currently are more accessible and prevalent than their heavy-duty counterparts. The Legislature may want to consider its balance of funding in these areas. If its priority is reducing emissions in the most highly polluted communities, it could consider increasing its focus on heavy-duty investments, as trucks account for a greater share of air pollution as compared to cars.
- ***Long-Term Planning and Evaluation.*** As the state continues with its ZEV transition, the Legislature may want to consider long-term goals and additional evaluation requirements for these programs. CARB completes a three-year outlook for each of its programs in its funding plan, but looks no further than that time span. The Legislature could require CARB to complete a long-term plan regarding its goals for the future of these programs and how they fit in to the larger planned ZEV transition. In particular, it could request that the administration provide specific goals for and progress regarding ZEV adoption rates within lower-income households. Regarding evaluation, the Legislature could require more regular updates detailing the number of consumers served by these programs, as well as synopses of participant surveys.

ZEV Infrastructure

Clean Transportation Program (CTP). CTP, administered by the California Energy Commission (CEC), currently is the primary program funding ZEV infrastructure in California.

The program has provided \$1.8 billion to develop clean transportation infrastructure since its founding in 2007. In recent years, CTP has shifted from funding both the development of ZEVs and lower-emission fuels to primarily funding ZEV and hydrogen vehicle charging infrastructure. In its November 2023 investment plan, CEC allocated \$436 million in 2023-24 to fund a variety of clean vehicle infrastructure projects and stated an intention to spread an additional \$1.3 billion across 2024-25 through 2026-27. Funding sources include General Fund that the Legislature appropriated in recent years through the ZEV budget package, GGRF, and revenues from certain dedicated vehicle fees. Chapter 319 of 2023 (AB 126, Reyes), which renewed and extended the program through 2030, added some new requirements, including that at least 50 percent of funds be appropriated to projects that benefit disadvantaged and low-income communities.

Key Program Findings:

- ***Accessibility of Funded Chargers.*** According to CEC, over the lifetime of CTP, 59 percent of funds has been awarded to projects located in disadvantaged and/or low-income communities. As of December 2023, about 24,500 ZEV chargers have been installed or are planned for installation through CTP. Some advocates and researchers note that even if funded chargers are located in such communities, they still may not be in accessible locations. For example, a charger could technically be located within a disadvantaged community's zip code but be installed on the outskirts of town some distance away from transit corridors or population centers. CEC is in the process of setting up a Community Benefits Framework for funded projects. This framework is intended to better track locations of projects and whether communities are directly benefiting from infrastructure.
- ***Barriers in Accessing Funding.*** CEC staff and advocates note that some stakeholders who may be interested in applying for funding—including smaller, tribal, and rural communities—may not have the resources to complete required applications nor the awareness of available opportunities.
- ***Barriers in Multiunit Housing.*** Over the past couple of years, notable state funding has been allocated to developing ZEV charging options in multiunit dwellings and for drayage truck infrastructure. These are particularly important for increasing equitable access, as inability to charge at home has been found to be a deterrent for renters (who are more likely to be lower-income compared to homeowners) interested in purchasing an ZEV.

Key Equity Considerations for ZEV Infrastructure Programs:

- ***Equity Targeting.*** While the state's investments in charging infrastructure have shifted to prioritize low-income and disadvantaged communities in recent years, the state still funds chargers in other communities without these designations. Given limited funding, the Legislature could consider further prioritizing funding for installing chargers in areas where they might not be developed without state assistance.

- ***Multiunit Dwellings.*** Forty percent of Californians are renters. In most cases, renters face greater barriers to home charging than homeowners. While the state is beginning to prioritize this population with grants and rebates to projects that focus on multiunit dwellings, it could consider additional steps, including modifications for building codes or requirements for landlords.
- ***Community Benefits.*** As mentioned above, CEC is in the process of launching a Community Benefits Framework to assess whether its funded chargers are actually benefitting communities. The Legislature may want to follow this process, review CEC's data, and solicit input from stakeholders regarding whether the state's efforts are adequately addressing widespread community access. One key question is whether a community's zip code is a sufficient metric to use when identifying locations for broad-based equitable charging access.

ENERGY AND ELECTRICITY

The state has enacted numerous policies aimed at reducing GHG emissions from the electricity sector. These include the Renewable Portfolio Standard, which requires load serving entities to provide a minimum percent of retail electricity sales from qualifying renewable generation, and the state's cap-and-trade program, which requires in-state electricity generators and importers to obtain allowances or offsets to cover their emissions. In addition, the state has incentivized solar adoption through initiatives like Net Energy Metering (NEM), which compensates households with solar panels for the energy they send back to the grid. The state also has implemented policies designed to promote energy efficiency and home electrification, such as Building Energy Efficiency Standards that are updated every three years. While these policies have the goal of helping the state limit its contributions to global climate change, they also have contributed to rising electricity costs for ratepayers in recent years. In response, the state has implemented a number of programs designed both to help lower-income households participate in the clean energy transition and meet the state's decarbonization goals, as well as to address affordability concerns. Below, we begin by highlighting some findings from energy-related equity research, then we discuss some key programs aimed at these objectives in three categories: electricity cost equity, home energy, and solar programs and policies.

Key Research Findings:

- Over the past several years, California electricity costs have [risen faster than inflation](#).
- Lower-income people [spend a greater share of their income on electricity costs compared to higher-earning households](#).
- Lower-income people are [more likely to be renters](#) and have less control over the efficiency of their home energy appliances than homeowners.
- Adopters of cleaner energy technology, including rooftop solar and heat pumps, are [more likely to be white and wealthier](#) due to the high up-front costs.
- Policies that encouraged solar adoption, including NEM, have had effect of [raising rates for ratepayers](#) who do not have solar.

- Households are expected to [use more electricity](#) in future years due to the transition to ZEVs and greater home electrification.
- Customers who live in areas with more extreme temperatures [tend to pay more in](#) energy costs.

Electricity Cost Equity Programs

The state has undertaken some initiatives to reduce electricity costs and address the high energy burdens faced by lower-income customers. These include bill assistance and credit programs and a new effort to establish different fixed electricity rates by income. In addition, most utilities maintain some kind of financial assistance or bill relief program, though these programs are often fairly limited.

California Public Utilities Commission (CPUC) Bill Assistance Programs. CPUC has established numerous programs designed to reduce home energy costs for lower-income customers. Major programs include California Alternate Rates for Energy (CARE), which provides a 30 percent discount on electricity bills and a 20 percent discount on gas bills. As of October 2023, 4.9 million households are enrolled in CARE. Prior to 2020, enrollment in CARE was about 4.5 million each year—enrollment increased at the start of the pandemic and has not returned to pre-2020 levels. CARE is funded through a utility rate surcharge paid by all other customers. Some individual utilities also offer their own payment assistance programs for their customers.

Key Program Findings:

- ***Existing Programs Not Enough to Address Energy Cost Burdens.*** Affordability advocates note that while these programs provide important support, the discount amounts are often not enough to make electricity bills affordable for low-income people.
- ***Middle-Income People May Also Face Cost Burdens but Do Not Qualify for Available Assistance.*** Californians earning moderate levels of income also pay a greater proportion of their income for energy costs compared to higher earning households and may struggle with electricity costs but typically are not eligible for bill-paying assistance.

California Climate Credit. The California Climate Credit is a bill credit applied to the electricity bills of most residential and small business ratepayers. The credit, which is typically applied twice per year, is funded through the state's cap-and-trade program and designed to offset electricity cost increases that result from companies' compliance with the program. Investor-owned utilities (IOUs) receive free cap-and-trade allowances that they sell on the market, then use the proceeds they generate to support the credit. CPUC administers the credit, which is delivered to customers through their respective utilities. The amounts vary by utility. For the past several years, credit amounts have ranged from \$30 to \$64, dispersed twice per year.

Key Program Findings:

- ***Offsets IOU Compliance Costs, but Not Full Costs of State’s Cap-and-Trade Program.*** The credit helps offset the potential impacts of rising electricity costs that could result from companies passing through their costs of complying with the cap-and-trade program. While the credit has—on average—fully offset and even exceeded IOU compliance costs (providing ratepayers with a net financial benefit), it does not address the cost impacts of cap-and-trade on other areas of consumption outside of the electricity sector. (For example, as noted above, transportation fuel suppliers do not receive free cap-and-trade allowances and they pass through their compliance costs directly to consumers. The California Climate Credit does not offset transportation or other cap-and-trade related consumer costs.)

Income-Graduated Fixed Charge. Because the shared costs of maintaining the electric grid—known as fixed costs—are applied equally regardless of income, the current design of electricity rate results in higher proportionate costs for lower-income people. In response, Chapter 61 of 2022 (AB 205, Committee on Budget) required CPUC to establish an income-graduated fixed charge with at least three income tiers, designed so that lower-income ratepayers can receive a lower average monthly bill without any change in their electricity usage. CPUC currently is undertaking a rulemaking process and considering proposals for a new rate design. The new rate structure is scheduled to be finalized in the summer of 2024.

Key Program Findings:

- ***Different Options and Trade-Offs for Design.*** CPUC is considering different designs and income tiers for the fixed charge, with some proposals including three tiers, while others include five or more tiers. Some equity advocates support more tiers to better target benefits, while others advocate for a simpler system with fewer tiers. Other relevant issues that can and should be considered at this stage in the design process include the types of activities that will be covered in a fixed charge (such as whether it will include costs related to wildfire, grid reliability, and/or low-income bill assistance programs) and the types of incentives for electricity conservation that may be important to incorporate with this change.

Key Equity Considerations for Energy Cost Equity Programs:

- ***Continuing Affordability Concerns.*** Despite some existing bill assistance programs (both administered by the state and administered by individual IOUs), affordability issues persist. Lower-income households still experience disproportionate energy cost burdens and middle-income households—who typically do not have access to these programs—also face a notable energy cost burden. The Legislature may want to consider additional ways to address this issue.
- ***Future of the Climate Credit.*** CARB currently is in the early stages of a rulemaking process to make changes to the cap-and-trade program. These changes are likely to adjust the supply of allowances, which may impact the revenues that IOUs currently use to cover costs of the climate credit. Should preserving the credit be a priority for

the Legislature, it will want to monitor CARB's rulemaking process and consider providing feedback and/or legislative intervention regarding how this program and subsidy are structured.

- ***Design of Income-Graduated Fixed Charge.*** Because CPUC still is engaged in designing a new fixed charge, the Legislature likely will want to closely monitor the commission's process and progress and consider whether it ultimately meets the intentions of AB 205. Specifically, the Legislature will want to consider whether it is sufficient at addressing existing affordability concerns for lower-income residents (or whether additional steps might be needed to address this challenge), resulting impacts on middle- and high-income ratepayers, and whether certain activities currently supported through rates (such as wildfire remediation) could be better suited to other funding sources.
- ***Review of Electricity Rates.*** Numerous factors have contributed to the rapid increase in electricity rates in recent years. The Legislature could consider requiring a study or further review of these factors and the components that make up rates to inform potential future actions.
- ***Evaluation.*** The state has not conducted extensive evaluations of its existing programs and how effectively they alleviate high electricity prices. The Legislature could consider requiring more regular program evaluations if it desires a better picture of the cost burdens and gaps. Such an evaluation could also consider best available research regarding whether reduced electricity prices could increase usage and consequently result in some higher GHG emissions from the electricity sector.

Home Energy Programs

The state has multiple programs that pay for or subsidize the cost of home energy efficiency and electrification for lower-income people. These programs primarily fund activities that boost energy efficiency and tend to focus on homeowners. Time constraints did not allow us to research all of these programs to a level where we could cite program findings for each of them, but we have provided what information we were able to compile.

Energy Savings Assistance (ESA). This program, administered by CPUC, provides no-cost weatherization services to consumers who meet income limits for CARE. (As discussed above, CARE is CPUC's major bill assistance program for low-income households.) ESA provides attic insulation, energy-efficient refrigerators and furnaces, water heater blankets, and numerous other services that are designed to increase energy efficiency and lower customers' energy usage. ESA is administered by individual IOUs. The program is estimated to have served about 5.4 million households from January 2002 through October 2023. In 2022, Chapter 248 (SB 756, Hueso) increased the eligibility threshold from 200 percent to 250 percent of the FPL. Like CARE, ESA is funded through a rate surcharge paid by utility customers.

Low-Income Weatherization Program (LIWP). The Department of Community Services and Development administers this program, which provides lower-income households with solar energy systems and energy efficiency upgrades. The program's goals are to both reduce GHG

emissions while also lowering energy costs for lower-income households. LIWP contains two components that focus on specific types of housing: the LIWP Farmworker Housing Component, and the LIWP Multi-Family Energy Efficiency and Renewables Component. LIWP is funded through GGRF and the General Fund at an amount that varies each year. The 2023-24 budget allocated \$25 million of GGRF to LIWP and directed the funds to the multifamily component. A total of \$317 million has been allocated to LIWP since the program began in 2015. The program has served 20,153 single-family households and 12,311 units in multifamily housing.

Equitable Building Decarbonization. This program, administered by the CEC, is a new initiative intended to reduce GHG emissions from homes through paying to directly install decarbonization retrofits for low- and moderate- income households. The *2023-24 Budget Act* allocated \$432 million of GGRF in 2023-24, with an intention of allocating an additional \$428 million spread across 2024-25 through 2026-27. As of December 2023, CEC was still developing the program guidelines and had not yet expended any funds. As such, we have no specific program findings to cite.

Key Equity Considerations for Home Energy Programs:

- ***Prioritization of Efforts.*** The state's current home upgrade programs have multifaceted goals, including reducing GHGs by promoting energy efficiency, as well as reducing energy costs for low-income households. The Legislature may want to think about how it prioritizes these different goals as it continues to fund these programs. For example, if the Legislature's highest priority is to reduce energy costs for the most low-income people, a shift towards direct rebates or credits to reduce electricity bills may be most effective. However, if the highest priority is improving energy efficiency for lower-income people and stimulating the market for efficient home energy technologies, then the current focus on activities to increase efficiency is appropriate.
- ***Evaluation of Program Outcomes.*** The *2023-24 Budget Act* committed unprecedented General Fund and GGRF monies to a home energy program through Equitable Building Decarbonization. The Legislature may want to consider evaluation metrics to gain more clarity on what success looks like for this program as it gets off the ground, as well as other similar programs described above. These metrics could include number of homes served, accompanying GHG emissions reductions, satisfaction of participants, and comparative cost.
- ***Consolidation and Streamlining.*** Many of these programs work towards similar aims. The Legislature may want to consider whether each is necessary as a standalone effort or whether it should seek opportunities to simplify and consolidate.
- ***Uptake.*** For ESA specifically, much of the funding allocated in IOU budgets for the program has gone unspent. Senate Bill 756 attempted to address this issue by expanding the income eligibility to increase the pool of customers who qualified for the program but widespread data are not yet available to assess whether this had the intended effect. The Legislature may want to track this issue to see if additional action might be merited to help ensure funding is expended to meet intended goals.

Solar Programs and Policies

Due to costs and other issues described above, rooftop solar adoption has been much more concentrated amongst wealthier households and homeowners. The state administers a handful of programs designed to make the benefits of rooftop solar more accessible to lower-income households.

Solar on Multifamily Affordable Housing Program (SOMAH). This program, administered by CPUC, incentivizes the development of rooftop solar on multifamily affordable housing. The program is limited to deed-restricted, low-income residential housing apartments. Incentive amounts are determined by a formula that accounts for the property's size and location, as well as available federal tax incentives that can further reduce the up-front costs of installation. SOMAH is funded with \$100 million annually through IOU sale of cap-and-trade allowances (the same revenue source as the California Climate Credit described above). Since the program's creation in 2015, it has funded 453 solar projects for a total of about 72 megawatts (MW) of energy capacity.

Key Program Findings:

- ***Emphasis on Community Partnerships and Technical Assistance.*** SOMAH's program design is regarded positively by many equity advocates as being accessible. Advocates have praised the program's focus on community partnerships and technical assistance.
- ***Program Pace Needs to Accelerate to Achieve Stated Target.*** Chapter 582 of 2015 (AB 693, Eggman) established a target for SOMAH to support 300 MW of solar capacity by 2030. As noted above, in the eight years since it was established, it has only resulted in projects creating 72 MW of new capacity. To reach the statutory target, therefore, the program will have to hasten its deployment of incentive funding for new projects.
- ***CPUC's Recent Virtual NEM Policy Could Dilute Benefits.*** Like other properties, multiunit dwellings with rooftop solar receive compensation for the energy they supply to the grid through a policy known as virtual NEM. In November 2023, CPUC updated this policy and created the virtual net billing tariff, which will apply to future rooftop solar customers in multiunit dwellings. The new policy is designed to further incentivize battery storage and adjusts compensation so that future rooftop solar customers in multiunit dwellings would most likely receive a smaller financial benefit as compared to the previous policy. Some equity advocates have raised concerns that this change will disincentive solar on multiunit dwellings and consequently limit take-up of solar programs such as SOMAH. We discuss NEM issues in more detail below.

Community Solar Green Tariff (CSGT) and Disadvantaged Communities Green Tariff (DAC-GT). Administered by CPUC, CSGT provides local solar energy from solar projects at a 20 percent bill discount for low-income customers as well as residents in disadvantaged communities who may be unable to install solar on their roof. The program is administered by individual IOUs. The program is funded through both IOU sale of cap-and-trade allowances and

funding collected through rates via a surcharge on customer utility bills (known as the Public Purpose Program [PPP]). As of this writing, 18.4 MW of new solar projects have been approved as part of the program, though no customers are currently enrolled and limited funds have been expended because the projects have not yet been completed. CPUC projects CSGT expenditures in 2024 to be \$900,000 in cap-and-trade allowance revenues plus \$5.2 million in PPP funds.

The DAC-GT program will provide the same benefits anticipated from CSGT, but it allows eligible customers to be enrolled while the solar projects are under construction. As of this writing, 23,868 customers are enrolled in DAC-GT and about 74 MW of new solar projects have been approved (and are still under construction) as part of this program. The program is also funded from the same sources as CSGT. In 2022, DAC-GT expended \$4.5 million from cap-and-trade allowance revenues and \$10 million in PPP funds.

Key Program Findings:

- ***Making Sense of Programs.*** These programs are very similar yet separated. Equity advocates have reported that, as administered by utilities, the programs are somewhat inaccessible to some eligible customers due to their complexity and difficult applications.
- ***Timeliness of Benefits.*** Unlike DAC-GT, customers enrolled in CSGT will not be eligible for bill discounts until projects are completed.

Net Energy Metering. CPUC is responsible for developing and implementing NEM rules for households with rooftop solar. NEM refers to a process where households that send excess power to the grid via their solar panels receive credits on their utility bills that match retail electricity rates. The state's NEM policies have historically subsidized electricity costs for households with rooftop solar while raising them for everyone else and researchers note that NEM is one driver of high increases in residential electricity prices. (The average customer without rooftop solar pays 10 percent to 20 percent on their electricity bills to subsidize rooftop solar on the homes of others.) CPUC changed its NEM rules in December 2022 to address this issue and reduced benefits for ratepayers with rooftop solar. The new policy is known as NEM 3.0. (While NEM is a state policy and not a funding program—in contrast to most of the other activities we discuss in this letter—we highlight it here because it does have important fiscal implications for lower-income Californians.) As mentioned above, in November 2023, CPUC created a new Virtual Net Billing Tariff, which enacted similar policy changes for rooftop solar customers in multiunit dwellings as NEM 3.0 did for individual households.

Key Program Findings:

- ***Expected to Reduce Rates for Most Californians.*** The NEM changes are expected to reduce electricity rates for California ratepayers without rooftop solar and increase them for new solar customers (as compared to what their rates would have been under previous NEM policies). Concrete estimates are not yet available as to the magnitude of these changes.
- ***Trade-Offs and Ancillary Benefits for Lower-Income Customers.*** The NEM decision presents another opportunity for considering different trade-offs associated

with solar energy. While the prior rules placed higher cost burdens on ratepayers who did not own or lease solar panels, the beneficiaries did also include some lower-income customers who had been able to access solar (often through other state or local programs). Such benefits include grid reliability during shutoffs and lower electricity bills. The new NEM decision will place some limits on access to such benefits for future solar customers—both higher and lower income.

Key Equity Considerations for Solar Programs and Policies:

- ***Solar Access for Lower-Income Communities.*** The development of solar energy in California has played an important role in reducing GHG emissions from electricity. However, even with programs such as SOMAH, residential rooftop solar still is limited in disadvantaged and low-income communities due to high up-front costs and limited accessibility, and the recent NEM 3.0 policy likely will limit rooftop solar installations even further. The Legislature may want to consider whether expanding access to solar energy in disadvantaged communities continues to be a high priority (particularly given resulting benefits such as lower rates and greater local reliability), and if so whether additional policy action might be needed to sustain those efforts.
- ***Benefits for Multiunit Dwellings.*** As described above, the recent CPUC decision regarding virtual NEM will, similar to NEM 3.0, reduce benefits for rooftop solar customers in multiunit dwellings (while lessening costs for ratepayers without solar). The Legislature could explore options for ensuring that installing solar panels continues to be incentivized for owners of multiunit dwellings, given they frequently serve lower-income households and consequently could help reduce electricity bills for their tenants.
- ***Evaluation of Programs.*** The state has not conducted extensive evaluations regarding the outcomes from CPUC’s existing community solar programs. If it desires more oversight over these programs to inform future decisions, the Legislature could encourage or require CPUC to revisit its existing programs and use specific metrics for success.

CONCLUSION

We thank you for providing us a good opportunity to investigate these programs and issues further. We know that the degree to which the state’s climate policies impact the most vulnerable Californians—both positively and negatively—is a key question for the Legislature, and as such, we intend to continue to have this be an important area of focus in our future work.

As you may know, Chapter 135 of 2017 (AB 398, E. Garcia) requires our office to report annually on the economic impacts and benefits of the state’s GHG reduction goals. We are committed to bringing an equity lens to these annual required reports. For example, our most recent report in this series ([*Assessing California’s Climate Policies—Implications for State Transportation Funding and Programs*](#)) includes a discussion of how various potential alternative funding sources to replace lost fuel tax revenues might impact lower-income residents of the state.

As California continues its efforts to address climate change, the impacts of these policies on lower-income and disadvantaged communities are particularly important to consider. These communities are both impacted “first and worse” by climate change, and are more vulnerable to regressivity in climate and energy policies. Given the state currently faces a budget problem, the Legislature will also have to consider the fiscal implications of existing programs—and potential new efforts—as it weighs its priorities. We are happy to discuss these issues further with your office. If you have any questions about these or other issues, please contact Sarah Cornett (Sarah.Cornett@lao.ca.gov) of my staff.

Sincerely,

A handwritten signature in blue ink that reads "Gabriel Petek". The signature is fluid and cursive, with the first name being more prominent.

Gabriel Petek
Legislative Analyst