



**2024 BIENNIAL REPORT TO THE LEGISLATURE ON THE ASSEMBLY  
BILL 118 AIR QUALITY IMPROVEMENT PROGRAM,  
FISCAL YEARS 2022-23 AND 2023-24**

Release Date: **April 9, 2026**

This report can be viewed at the [Legislatively Mandated Reports](#) webpage. To order a hard copy of this report, please contact David Ernest García, Ph.D., Legislative Director, at (916) 322-8520 or via email at [David.Garcia@arb.ca.gov](mailto:David.Garcia@arb.ca.gov).

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## Executive Summary

This document provides the required biennial update on the implementation of the Air Quality Improvement Program (AQIP). Health and Safety Code Section 44274 requires the California Air Resources Board (CARB or Board) to submit to the Legislature a report containing details of projects funded, expected benefits of projects in promoting clean fuels and vehicle technologies, the impact that projects have on reaching air quality goals, and recommendations for future actions.

In the early years of AQIP, CARB focused investments on technology advancing projects that support California's long-term air quality and climate change goals in addition to providing immediate emissions benefits. These projects included the Clean Vehicle Rebate Project (CVRP), which provided rebates to consumers who buy zero-emission vehicles (ZEV), truck and bus vouchers through the Clean Truck and Bus Voucher Incentive Project (HVIP), and advanced technology demonstration projects. The flexibility allowed within AQIP allowed CARB to pilot concepts that became the core part of its incentive portfolio. In recent years, CVRP, HVIP, and advanced technology demonstration projects have been funded through the Low Carbon Transportation Program, and AQIP funds have primarily been directed to the Truck Loan Assistance Program (TLAP). More details on these projects can be found in the Annual Report to the Legislature on California Climate Investments Using Cap-and-Trade Auction Proceeds at the [California Climate Investments](#) webpage.

During this report's status update period covering fiscal years (FY) 2022-23 and 2023-24, 50% of AQIP specific funds were directed to TLAP, 25% supported the Innovative Small e-Fleet Pilot Project (ISEF), and 25% supported the Clean Off-Road Equipment Voucher Incentive Project (CORE). TLAP enabled small fleets affected by the Truck and Bus Regulation to secure financing to upgrade older vehicles in their fleets. AQIP provided a funding allocation of \$28.64 million in FY 2022-23 for the loan program. Approximately 5,650 cleaner trucks cleaner trucks were financed during the status update period. ISEF provides funding for small fleets to make the switch to zero-emission vehicles by offering innovative solutions such as flexible leases, short-term rentals, vehicle-as-a-service, subscription services, or other mechanisms such as owner planning assistance. AQIP provided \$14.3 million in FY 2023-24 for the program which is expected to fund 70 vehicles. CORE provides funding for fleets to purchase or lease commercialized zero-emission off-road equipment. Though the CORE program is largely funded through California Climate Investments it received a funding allocation of \$14.3 million of AQIP funds in FY 2023-24 which is expected to fund approximately 110 pieces of equipment.

Status updates for projects that received AQIP funds prior to 2022-23, but were not yet complete before publication of the previous biennial report, are presented in the

Appendix. This includes HVIP purchases that did not receive any AQIP funding during the status update period.

HVIP was provided with \$25 million in FY 2020-21 AQIP funding which was used to assist with the purchase of 198 vehicles. The project successfully supports the transformation to ZEVs in the heavy-duty on-road market.

Emission reduction benefits attributable to AQIP-specific funds between July 1, 2022, and June 30, 2024, are contained in this report. The deployment of vehicles from these funds has resulted in emission reductions of approximately 645 tons of oxides of nitrogen (NO<sub>x</sub>).

CARB staff is proposing AQIP allocations of approximately \$15 million to ISEF and approximately \$15 million to CORE in FY 2024-25. Both programs have shown to be successful and are in demand. Additionally, CARB is proposing an AQIP allocation of \$5 million to the Zero-Emission Truck Loan Pilot Project which will provide expanded financing opportunities for smaller fleets that are moving to heavy-duty zero-emission vehicles. The Board will consider staff's proposals at the November 2024 board meeting to approve the annual [Funding Plan for Clean Transportation Incentives](#).

## **I. Introduction**

### **A. Air Quality Improvement Program and Assembly Bill 118**

AQIP is a voluntary incentive program administered by CARB to reduce smog and diesel particulate pollution, with concurrent reductions in greenhouse gas emissions. AQIP was created under the California Alternative and Renewable Fuel, Vehicle Technology, Clean Air, and Carbon Reduction Act of 2007 (Assembly Bill (AB) 118, Núñez, Chapter 750, Statutes of 2007). Originally scheduled to sunset in 2015, the passage of AB 8 (Perea, Chapter 401, Statutes of 2013) extended the funding for AB 118 programs until January 1, 2024. In 2023, the fees that fund AQIP were reauthorized through AB 126 (Reyes, Chapter 319, Statutes of 2023) to support AQIP through 2035. Through AB 126 the purpose of the funds was modified to fund air quality improvement projects relating to zero-emission fuel and vehicle technologies while prioritizing heavy-duty projects. The focus includes reducing criteria air pollutants in the logistics, goods movement, off-road, warehouse, and port sectors, improving air quality in nonattainment basins, with a priority for projects in extreme nonattainment, and improving the air quality impacts of zero-emission transportation fuels and vehicles, vessels, and equipment technologies. This resulted in a revision in the type of projects eligible for funding under the program. For additional background on AB 118, please see the 2016 Biennial Report to the Legislature at the [Legislatively Mandated Reports](#) webpage.

AQIP has invested approximately \$459 million in 13 project categories from program inception in FY 2008-09 through 2023-24. Specific funding categories have included financing for heavy-duty diesel trucks, incentives for clean cars, hybrid and zero-emission trucks and buses, electric lawnmowers, zero-emission agricultural work vehicles, and demonstration projects for cleaner marine and locomotive engines. All of the projects funded through AQIP have supported the expansion of advanced clean technologies in vehicles or equipment in the California marketplace.

### **B. Implementation of Air Quality Improvement Program**

CARB adopted regulations that establish the administrative procedures for implementing AQIP. As required in Health and Safety Code (HSC) Section 44274, subdivision (a), the Board adopted regulatory guidelines in 2009. Central to the guidelines is the requirement for a Board-approved annual Funding Plan developed with public input.

The Funding Plan is each year's blueprint for expending AQIP funds appropriated to CARB in the annual State Budget. The Funding Plan describes the projects CARB intends to fund, establishes funding targets for each project, and provides justification for these decisions. The Funding Plan is updated and presented to the Board for its approval each year. CARB staff hold a series of workgroup meetings and

public workshops during the development of each Funding Plan to solicit feedback and recommendations. See the [Funding Plan](#) for details.

### **C. Funding Sources**

Funding for AQIP comes primarily from the smog abatement fee assessed annually by the Department of Motor Vehicles (DMV) during a vehicle's first 6 registration years in lieu of a biennial smog inspection. Of the \$20 collected for each vehicle at the time of annual registration, \$4 is allocated to CARB for AQIP through the end of 2035 (HSC 44060.5).

A small portion of AQIP funding comes from two additional sources: an initial registration fee for new watercraft and a special equipment identification plate fee for certain types of equipment. The fees identified above generate approximately \$25-\$30 million on an annual basis.

In addition to the fees above, AQIP has received \$108 million in additional funding from other sources since program inception to support the growing demand of AQIP projects. For details on the other funding please see the 2016 Biennial Report to the Legislature at [the Legislatively Mandated Reports](#) webpage.

Beginning in FY 2013-14, funds from the Greenhouse Gas Reduction Fund were appropriated by the Legislature for Low Carbon Transportation (LCT) investments in HVIP and Low NOx Engines and CVRP. Since then, per the FY 2023-24 Funding Plan, LCT appropriations in these programs have totaled over \$3.5 billion. Nearly all AQIP funds were then directed to the Truck Loan Assistance Program for helping small-business truckers affected by the In-Use Truck and Bus Regulation to secure financing for clean trucks.

### **D. Reporting Requirements**

There are three separate reporting requirements for AQIP.

First, HSC Section 44274 subdivision (d) requires CARB to submit a biennial report to the Legislature on the implementation of AQIP. The report is required to include a list of funded projects, the benefits of these projects, and recommendations for future actions.

Second, CARB's regulation for implementing AQIP requires CARB staff to report to the Board biennially on progress in implementing the program. The regulation provides that this report may be combined with the required report to the Legislature (Title 13, Chapter 8.2, California Code of Regulations Section 2358).

Third, HSC Section 44274.7, subdivision (f) requires CARB to report to the Legislature annually on the implementation of the Truck Loan Assistance Program established in the FY 2008-09 State Budget with AQIP funds.

This report is intended to fulfill all of these requirements. Project status update information provided in this report covers current AQIP projects funded in FYs 2022-23 and 2023-24. A list of past projects is also included in Appendix A.

## **II. Air Quality Improvement Program Projects Funded in FY 2022-23 and 2023-24**

### *Overview*

AQIP projects support the demonstration and deployment of near-zero and ZEVs and equipment, and other advanced technologies that provide emission reductions and are critical to meeting California's longer-term air quality and climate change goals. Three categories, TLAP, ISEF, and CORE, received AQIP funding during the status update period of FYs 2022-23 and 2023-24.

Table 1 provides a summary of the funding from AQIP provided to the above categories during the status update period. AQIP invested a total of approximately \$57.28 million. The emission benefits generated during the status update period from these 3 AQIP projects are illustrated in Tables 2 and 3.

This is followed by an overview of individual projects with project benefits, current status (as of June 30, 2024), and future direction. Emission benefits shown in this report have only been calculated for monies attributable to AQIP funding.

**Table 1: AQIP Project Funding (millions) during the Status Update Period**

Project Category	Fiscal Year 2022-23	Fiscal Year 2023-24	Cumulative Funding through 6/30/2024	Comments
Truck Loan Assistance Program	\$28.64	\$0	\$247.88	-Launched in April 2009 -2008-09 was the first year funded by AQIP
ISEF	\$0	\$14.30	\$14.30	-Launched in 2021 and funded by the Greenhouse Gas Reduction Fund -2023-24 was the first year funded by AQIP
CORE	\$0	\$14.34	\$14.34	-Launched in 2020 and funded by the Greenhouse Gas Reduction Fund and Air Pollution Control Fund -2023-24 was the first year funded by AQIP

**Table 2: Statewide Criteria Pollutant and Precursor Emission Reductions  
Attributable to AQIP in FY 2022-23 and FY 2023-24**

Funding Category	AQIP Funding (millions)	NOx <sup>1</sup> (tons)	ROG <sup>1</sup> (tons)	PM 2.5 <sup>1</sup> (tons)
TLAP <sup>3</sup>	\$28.64	645	5	-- <sup>2</sup>
ISEF <sup>4</sup>	\$14.30	2.11	0.052	0.0475
CORE <sup>4</sup>	\$14.34	12.1	7.5	0.287

<sup>1</sup> Criteria pollutant emission reductions are calculated for exhaust emissions only. Reactive Organic Gas (ROG)

<sup>2</sup> Particulate matter (PM) reductions are not included in the table as attributable to the Truck Loan Assistance Program because the In-Use Truck and Bus Regulation already requires PM reductions from trucks

<sup>3</sup> Emissions based on approximately 5,650 trucks for the Truck Loan Assistance Program

<sup>4</sup> No vehicles/equipment from the FY 2022-23 and FY 2023-24 funds have been deployed yet, so the cumulative reductions are based on projected emission reductions during the status update period attributable to AQIP through June 30, 2024.

**Table 3: Cumulative Statewide Criteria Pollutant and Precursor Emission  
Reductions Attributable to AQIP**

Funding Category	AQIP Funding (millions)	NOx <sup>1</sup> (tons)	ROG <sup>1</sup> (tons)	PM 2.5 <sup>1</sup> (tons)
TLAP	\$247.88	18,522	600	-- <sup>2</sup>
ISEF <sup>3</sup>	\$14.30	2.11	0.052	0.0475
CORE <sup>3</sup>	\$14.34	12.1	7.5	.0287

<sup>1</sup> Criteria pollutant emission reductions are calculated for exhaust emissions only. ROG

<sup>2</sup> PM reductions are not included in the table as attributable to the Truck Loan Assistance Program because the In-Use Truck and Bus Regulation already requires PM reductions from trucks

<sup>3</sup> No vehicles/equipment from the FY 2022-23 and FY 2023-24 funds have been deployed yet, so the cumulative reductions are based on projected emission reductions during the status update period attributable to AQIP through June 30, 2024.

## **A. Truck Loan Assistance Program**

### *Overview*

The Truck Loan Assistance Program utilized AQIP funds to help small business fleet owners secure financing to purchase equipment compliant with CARB's In-Use Truck and Bus Regulation. This program was a successful incentive option that started in 2009 and ended loan enrollments on July 31, 2023.

Implemented in partnership with the California Pollution Control Financing Authority (CPCFA) through its California Capital Access Program, the Truck Loan Assistance Program created financing opportunities for truck owners who fell below conventional lending criteria and were unable to qualify for traditional financing. AQIP funds were set aside (based on a percentage of each enrolled loan amount) in each participating lender's loan loss reserve account to cover potential losses resulting from loan defaults. In this way, the program leveraged public funding with private investments from participating lending institutions. The program was available for small fleets with 10 or fewer trucks at the time of application. The interest rate was capped at 20%. The average interest rate for issued loans was about 13%.

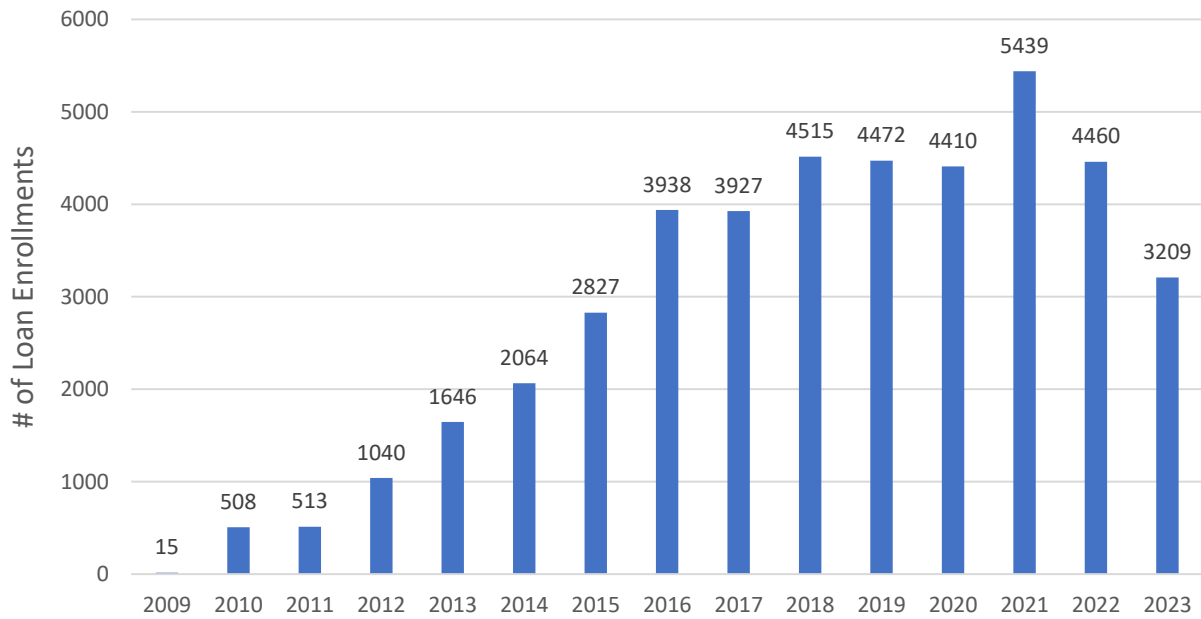
### *Project Benefits*

This program primarily reduced criteria and toxic air contaminant emissions by helping small business truckers secure financing to purchase newer trucks or retrofits to comply with the In-Use Truck and Bus Regulation. The cleaner trucks reduced health risks from exposure to diesel PM (a toxic air contaminant), particularly in disadvantaged communities where exposure can be substantial. Cleaner trucks also emitted less NOx. Reducing NOx emissions from diesel engines is important because they can undergo chemical reactions in the atmosphere leading to formation of PM 2.5 and ozone.

### *Project Status as of June 30, 2024*

Approximately \$248 million allocated to the program has been leveraged to provide over \$3.2 billion in financing for the purchase of over 46,000 cleaner trucks, exhaust retrofits, and trailers. Loan enrollments increased over most years of the program until 2018 and remained steady except for an increase in calendar year 2021 and a decrease at the end of the program due to loan enrollments concluding in the middle of its last year on July 31, 2023, as shown in Figure 1, which shows activity by calendar year.

**Figure 1: Loan Activity by Calendar Year**



CARB allocated \$28.64 million for the program for FY 2022-23. In FY 2023-24, no funding was allocated to the program. The model year schedule in the Truck and Bus Regulation came to an end on January 1, 2023, therefore a 2010 or newer engine is required except for some exemptions. DMV compliance verification only allows trucks compliant with the Truck and Bus Regulation to be registered at the DMV. After the last AQIP allocation, CARB prioritized funding to support adoption of zero-emission heavy-duty vehicles. CARB is supporting financing assistance through the new Zero-Emission Truck Loan Pilot Project.

The previous CARB contribution rate structure from January 2016 to March 2020 consisted of 3 tiers of 4, 7, and 14% at loan loss reserve amounts exceeding \$1.5 million, exceeding \$500,000 to equal or less than \$1.5 million, and less than \$500,000, respectively. Since March 2, 2020, the CARB contribution rate for lenders with loan loss reserve accounts of \$500,000 or more was increased from 4 or 7 to 10% of the enrolled loan balance. This change was in response to rising risks for lenders in the program, so they could continue or increase their participation providing loan assistance to small business truckers by enrolling more loans. For lenders with contributions to loan loss reserve accounts less than \$500,000, the contribution rate remained the same at 14%.

Incremental recapture procedures were implemented by CARB and CPCFA in 2017. This mechanism redirected older contributions back to the Truck Loan Assistance Program to support enrollments and made the program more self-sustaining by reinvesting funds from matured loans. Based on loan activity through June 2024, a

total of approximately \$18 million in recaptured funds was redeposited into the program account.

Table 4 provides a summary of loans, expended funding, and financing provided. Table 5 shows the vehicles and equipment financed. About 46% of enrolled loans have been issued to owner operators with 1 truck, and about 96% of enrolled loans have been issued to fleet owners with 10 or fewer employees. Almost half of the Truck Loan Assistance Program funding has been spent within and is benefiting individuals living in disadvantaged and low-income communities.

**Table 4: Truck Loan Assistance Program - Loans, Funding, and Financing**

Number of Loans Issued	State Funding Expended (millions)	Total Amount Financed (billions)
43,059	\$270.8	\$3.2

Based on data through June 30, 2024.

**Table 5: Truck Loan Assistance Program - Vehicles and Equipment Financed**

Project Type	Number of Projects Financed <sup>1</sup>
Truck Purchases	44,354
Exhaust Retrofits	618
Trailers	1,320

Based on data through June 30, 2024.

<sup>1</sup>Total number of loans issued does not equal the number of projects financed because some loans included multiple projects.

**Figure 2: Truck Loans in California by Air District**



Figure 2 shows the number of truck loans issued within each air district through June 30, 2024. The program has broad statewide appeal, including rural regions.

*Emission Benefits*

AQIP funds are used to finance the replacement of trucks with model year 2010 or newer engines. Prior to FY 2019-20, the funds were also used to finance the retrofit of trucks with CARB-verified diesel emission control devices and the replacement of trucks with model year 2007-2009 engines. Emission reductions were achieved

because the retrofitted trucks and the air pollution controls installed by manufacturers on new engines have lower emissions. Table 6 shows emission benefits of the Truck Loan Assistance Program based on 44,354 cleaner trucks supported by this program through fiscal year (FY) 2023-24. PM reductions are not included in the table because the In-Use Truck and Bus Regulation already requires PM reductions from trucks.

**Table 6: Statewide Truck Loan Assistance Program Criteria Pollutant and Precursor Emission Reductions**

Time Period	Estimated Trucks Funded	NOx <sup>1</sup> (tons)	ROG <sup>1</sup> (tons)
FY 2022-23 and 2023-24	5,650	645	5
Cumulative <sup>2</sup>	44,354	18,552	600

<sup>1</sup> Emission reductions are calculated for exhaust, or “tailpipe” emissions only.

<sup>2</sup> Cumulative through June 30, 2024

*Future Direction*

Loan enrollments into the Truck Loan Assistance Program ended July 31, 2023. Existing loans enrolled before this date are scheduled to mature before the end of calendar year 2030.

California’s clean air quality, carbon neutrality, petroleum reduction, and climate change goals are accelerating the introduction and deployment of zero-emission technologies. With 100% of sales of new passenger vehicles and trucks in the State required to be zero-emission by 2035, all drayage trucks required to be zero-emission by 2035, off-road vehicles and equipment required to be zero-emission by 2035 where feasible, and all other vehicles in the medium- and heavy-duty fleet required to transition to zero-emission by 2045 as described in [Executive Order N-79-20](#), California is quickly moving toward zero-emission vehicles (ZEV). With these policies in place, financing assistance had to evolve to meet the needs of small-business truckers seeking ZEV financing.

CARB staff is working with CPCFA and participating lenders to support zero-emission heavy-duty truck financing for small fleets. Air Quality Improvement Program (AQIP) funding is proposed for the Zero-Emission Truck Loan Pilot Project in the [FY 2024-25 Funding Plan for The Low Carbon Transportation \(LCT\) Investments and AQIP](#) to help support the financing of ZEVs for small fleets. The Board will decide on staff recommendation as part of the public process for producing the annual Funding Plan for LCT Investments and AQIP.

The Truck Loan Assistance program showed a successful way to leverage public funds into private financing, having leveraged nearly \$270.8 million in contributions into over \$3.2 billion in private financing. CARB staff is working with CPCFA and

participating lenders to use the leverage of the program to support the financing of zero-emission trucks in the future, supporting California's goals to further reduce harmful emissions and petroleum usage, achieve carbon neutrality, and deploy ZEVs. Learnings from the Truck Loan Assistance Program and the new Zero-Emission Truck Loan Pilot Project will help support zero-emission heavy-duty vehicles for small fleets in the future.

## **B. Innovative Small e-Fleet Pilot Project**

### *Overview*

Innovative Small e-Fleet Pilot Project launched in 2021 as a set-aside within Clean Truck and Bus Voucher Incentive Project (HVIP) in part to better understand the specific needs of small fleets and help inform broader HVIP policy. ISEF utilizes AQIP funds to offer simple and low-cost solutions for the adoption of ZEVs by small fleets that seek to solve unique challenges through innovative solutions. ISEF aims to assist small fleets in making the transition to ZEVs by offering funding for flexible leases, short-term rentals, vehicle-as-a-service, subscription services, or other mechanisms such as owner planning assistance. In FY 2023-24 processing of straight purchases and leases of at least three years moved to HVIP.

By providing financial support to operators of medium- and heavy-duty fleets in the adoption of ZEVs, ISEF meets the directive of Senate Bill 372 ([Leyva, Chapter 639, Statutes of 2021](#)).

Some early challenges with ZEV adoption, such as high upfront costs, limited financing and insurance options, and planning for fueling infrastructure, particularly affect small fleets and owner-operators. By dedicating a portion of HVIP funds to small fleets who choose to adopt zero-emission vehicles, CARB positioned itself to better understand specific needs of this traditionally underserved group and support their transition to zero-emission. ISEF supports innovative mechanisms that provide key solutions for small fleets, which help drive interest and demand for ZEV vouchers.

Eligibility includes entities with operations in California, including independent owner-operators, with 20 or fewer vehicles that have a gross vehicle weight rating greater than 8,500 lbs., and that have less than \$15 million in annual revenue - nonprofits and government agencies are exempt from the revenue cap.

Ongoing high-project demand shows that small fleets are seeking advanced technologies. In FY 2021-22 when ISEF launched, all funding was requested on the first day of ISEF opening, with demand surpassing the initial \$25 million allocation and a total of \$35 million requested. For FY 2022-23, \$33 million was allocated and an additional \$50 million from HVIP was made available to meet demand. In FY 2023-24, \$14.32 million was allocated from AQIP, with voucher requests continuing to increase. ISEF is now in its fourth year. For FY 2024-25, the fourth year of ISEF, CARB staff is proposing a funding need of at least \$14.97 million to meet the demand demonstrated throughout the previous funding cycles. Funding decreased in FY 2023-24 because as of November 2023, straight purchases and basic leases of three years or longer of ZEVs were no longer processed through ISEF, expanding available funding for continuous project access while keeping the focus on innovative solutions.

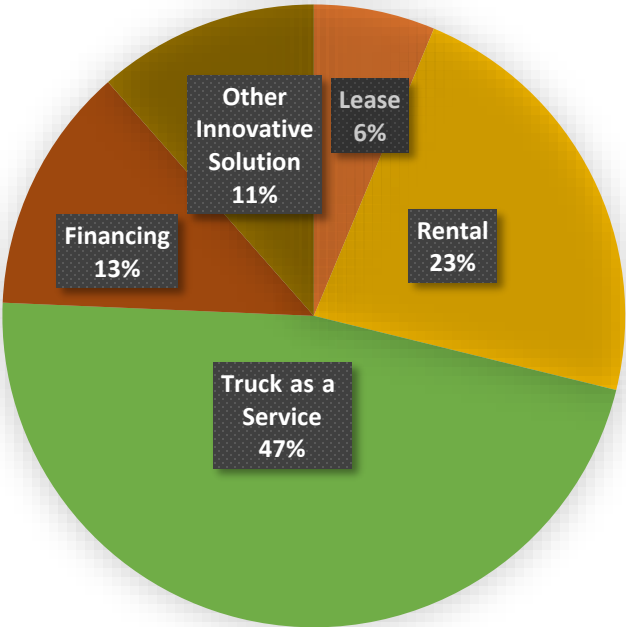
*Project Benefits*

ISEF contributes to the reduction of air pollutants statewide while providing increased assistance to small fleets operating in areas most burdened by medium- and heavy-duty vehicle transportation. ISEF incentives drive manufacturing production and fleet acceptance of advanced heavy-duty vehicle technologies that California must deploy to meet its long-term air quality and climate goals. ISEF is used to incentivize only zero-emission technologies and electric power-take-off systems. Small fleets may be eligible to receive modifiers if operating in disadvantaged communities, class 8 drayage trucks, refuse trucks, or class 8 fuel cell trucks. Modifiers increase voucher amounts to further support small fleets and the communities affected by commercial vehicle operations.

*Project Status as of June 30, 2024*

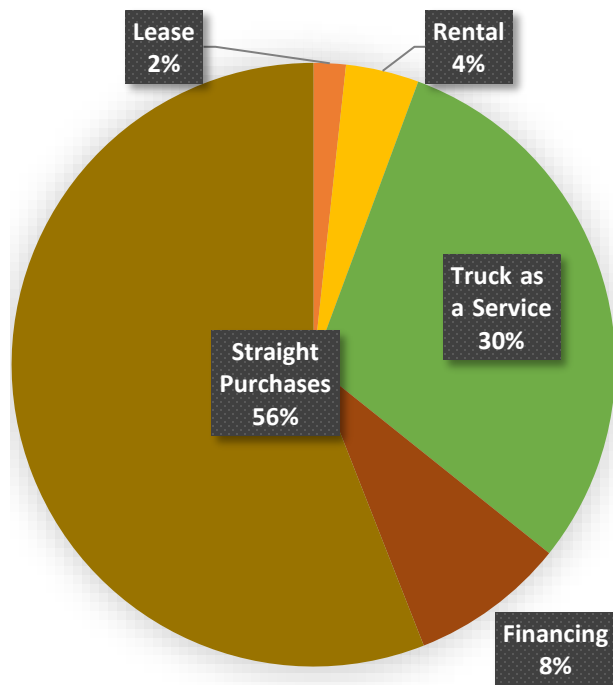
During Fiscal Year 2023-2024, the third year of ISEF, approximately \$57 million was requested by 96 unique fleets with an average fleet size of 4.4 vehicles as demand continued to exceed funding allocation. On average 89% of voucher requests were for fleets domiciled in disadvantaged communities.

**Figure 3: Types of Innovative Solutions Requested in FY 2023-24**



During the second year of ISEF, Fiscal year 2022-23, approximately \$111 million was requested by 52 unique fleets with an average fleet size of 5 vehicles. On average 78% of voucher requests were for fleets domiciled in disadvantaged communities.

**Figure 4: Types of Innovative Solutions Requested in FY 2022-23**



#### *Emission Benefits*

AQIP funding was made available to ISEF in FY 2023-24, but no vehicles have been deployed yet, so emission reductions cannot be tied directly to the funding dollars. However, Table 7 provides projected emission reductions attributable to AQIP, calculated using the [Fiscal Year 2023-24 Funding Plan for Clean Transportation Incentives. Appendix A Emission Reductions Quantification Methodology](#). Emissions estimates associated with this status update period will be updated in future reports to the Legislature after the funded vehicles have been deployed.

For this analysis, staff assumes that the 70 vehicles will be funded by the 2023-24 AQIP.

**Table 7: Projected Statewide ISEF Criteria Pollutant and Greenhouse Gas Emission Reductions Attributable to AQIP**

Time Period	NO <sub>x</sub> (tons)	ROG (tons)	PM 2.5 (tons)	CO <sub>2</sub> (MTCO <sub>2</sub> e)
Projected Emission Reductions from FYs 2022-23 and 2023-24 Funding	2.11	0.052	0.0475	2,850

*Future Direction*

For Fiscal Year 2024-25, CARB staff propose to allocate \$14.97 million of the \$34.94 million AQIP appropriation to ISEF.

CARB staff has met directly with interested parties and conducted multiple public workgroups through the life of the project to solicit project feedback and understand the changes needed for improvement. A common theme from participants was the desire for ISEF to provide flexibility and to continue to explore and create new innovative solutions. To that end, CARB staff proposes to explore a Used Truck Voucher Pilot within ISEF to accelerate the development of an affordable secondary vehicle market that would provide small fleets with more flexibility.

Many small fleet owners traditionally purchase used rather than new vehicles and supporting second life vehicle purchases could provide an important new solution to assist fleet owners that are making the switch to a zero-emission vehicle. A pilot project carefully designed to avoid cost escalation of used vehicle prices would provide valuable residual value data, which is currently limited. Residual or resale value is also a key component in the finance and insurance of vehicles because it represents a vehicle's replacement value or potential financial payout in the event of a claim, loan default, or other loss. Incentives can help support residual values that are often disproportionately low due to a lack of data, while also expanding the knowledge base.

A used truck voucher pilot would also support the goals of Senate Bill 372. This would be achieved by developing a project to facilitate the adoption of commercial ZEVs. CARB staff will broadly solicit input for the potential design of a used vehicle project.

Additionally, CARB staff will continue to explore innovative solutions for ISEF such as all-inclusive leases, truck-as-a-service, insurance options, fleet management assistance, and other creative mechanisms.

## **C. Clean Off-Road Equipment Voucher Incentive Project**

### *Overview*

Clean Off-Road Equipment Voucher Incentive Project (CORE) incentivizes California fleets to purchase or lease commercialized zero-emission off-road equipment. CORE provides a streamlined voucher process by which potential purchasers can receive funding to help offset the higher cost of zero-emission off-road equipment through a point-of-sale discount, and does not require the scrapping of existing equipment.

CORE received an initial allocation of \$40 million from FY 2017-18 funds and was subsequently allocated an additional \$4.6 million in funding for FY 2018-19. In February 2020, CORE launched as a first-come, first-served voucher project for zero-emission off-road freight equipment and was met with substantial demand. Recognizing CORE's successful launch and the continued need for funding in the off-road sector, CORE was allocated \$194.95 million in FY 2021-22. The increase in funding allowed CORE to expand eligible equipment beyond freight enabling equipment, and offered funding for construction, agriculture, switcher locomotives, and commercial harbor craft equipment and vessels. In FY 2022-23 \$273 million was allocated to CORE and was met again with high demand.

In FY 2023-24, \$14.3 million in AQIP funds were allocated to CORE.

### *Project Benefits*

CORE incentives drive manufacturing production and fleet acceptance of zero-emission heavy-duty vehicle technologies that California must deploy to meet its long-term air quality and climate goals. One of the primary barriers to broad market adoption of zero-emission off-road equipment is limited production volumes. The increased costs associated with limited production makes zero-emission equipment less cost-competitive and can deter fleets from investing in such equipment, even if there are anticipated benefits. CORE aims to help address the initial cost barrier for zero-emission off-road equipment by helping offset the incremental cost of purchasing and deploying such equipment.

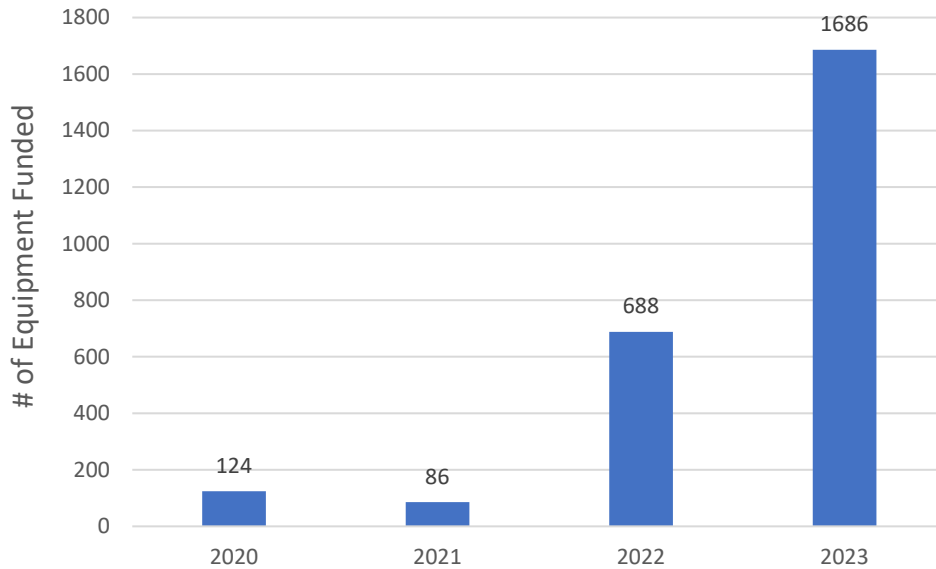
### *Project Status as of June 30, 2024.*

The \$14.3 million FY 2023-24 AQIP dollars are under grant and all funds have been requested by small fleets; vouchers will be paid once funded equipment is built and delivered. The CORE webpage <https://californiacore.org/> provides an interactive data tool for funded vehicles, real-time accounting of voucher funds remaining, and other project information.

**Table 8: Number of Vehicles/Equipment Funded**

Vehicle/Equipment Type	# of Vehicles/Equipment
Agricultural Equipment	503
Airport Ground Support Equipment	83
Cargo-Handling Equipment	12
Commercial Harbor Craft	16
Construction	260
Forklifts	113
Mobile Power Units	323
Railcar Movers	14
Terminal Tractors	759
Transportation Refrigeration Units	501
Total	2584

**Figure 5: Number of Funded Equipment by Calendar Year**



*Emission Benefits*

AQIP funding was made available to CORE in FY 2023-24, and emission reductions can be tied directly to the funding when equipment is delivered and operational . However, Table 9 provides projected emission reductions attributable to AQIP, calculated using the [Fiscal Year 2023-24 Funding Plan for Clean Transportation Incentives. Appendix A Emission Reductions Quantification Methodology](#). Emissions estimates associated with this status update period will be updated in future reports to the Legislature after the funded vehicles have been deployed.

For this analysis, staff assumes that the 110 pieces of equipment will be funded by the 2023-24 AQIP.

**Table 9: Projected Statewide CORE Criteria Pollutant and Greenhouse Gas Emission Reductions Attributable to AQIP**

Time Period	NO <sub>x</sub> (tons)	ROG (tons)	PM 2.5 (tons)	CO <sub>2</sub> (MTCO <sub>2</sub> e)
Projected Emission Reductions from FY 2022-23 and 2023-24 Funding	12.1	7.5	0.287	12,000

### *Future Direction*

For FY 2024-2025, CARB staff propose to allocate \$14.97 million of the \$34.94 million AQIP appropriation to CORE.

CORE has seen growth in voucher demand from small businesses with a twofold increase over the past year. This year CARB is proposing directing all new CORE funding to support small businesses.

### **III. Recommendations for Future Action**

In recent years, AQIP's emphasis has been on providing financial assistance to small-business fleet owners for upgrading their heavy-duty trucks through the Truck Loan Assistance Program and ISEF, and upgrading off-road equipment through the CORE project.

After evaluating anticipated project demand and taking into account stakeholder input, staff recommends, through a public process for Board consideration, allocating the FY 2024-25 AQIP appropriation to the Zero-Emission Truck Loan Pilot Project, ISEF, and CORE. The Board will consider staff's recommendation as part of the public process for producing the annual [Funding Plan for LCT Investments and AQIP](#).

The technology-advancing projects funded through AQIP mark an important progression in bringing the next generation of vehicles to California roadways beginning with hybrid-electric trucks and leading to ZEVs today. AQIP investments have helped start the fundamental transformation of the California fleet to zero-emission vehicles that will be needed to meet California's post-2020 State Implementation Plan commitments, 2030, and 2050 climate change goals. These investments also help position the State for green jobs growth.

## **Appendix A: Projects Receiving AQIP Funding Prior to FY 2022-23**

In the early years of Air Quality Improvement Program (AQIP), CARB focused investments on technology advancing projects that support California's long-term air quality and climate change goals in addition to providing immediate emission benefits. These projects included the Clean Vehicle Rebate Project (CVRP) which provides rebates to consumers who buy zero-emission vehicles and advanced technology freight demonstrations. The flexibility allowed within AQIP allowed CARB to pilot concepts that became the core part of its incentive portfolio. In recent years, CVRP and advanced technology freight demonstrations have been funded through the Low Carbon Transportation Program.

Eight project categories received a total of \$179.4 million in AQIP funding between fiscal year (FY) 2009-10 and FY 2021-22. These projects are complete and did not receive additional AQIP funding during the status period of FYs 2022-23 and 2023-24. Table 10 provides a summary of the funding provided to these project categories, and they are described in detail in the 2016, 2018, and 2020, 2022 Biennial Reports to the Legislature, available at the [Legislatively Mandated Reports](#) webpage.

**Table 10: Summary of AQIP Projects by FY (Prior to FY 2022-23) and Emission Reductions Attributable to AQIP**

Project Category	Total Amount in Millions	NOx (tons)	ROG (tons)	PM (tons)
CVRP	\$67	248	41	105
Agriculture Equipment Trade-Up	\$3.5	106	11.5	6.70
Truck Filter Replacements	\$3	--	--	6.8
Advanced Technology Demonstrations <sup>1,2</sup>	\$6.2	--	--	--
Lawn & Garden Equipment Replacement	\$2.6	<1	--	<1
Hybrid Off-Road Equipment Pilot <sup>1</sup>	\$2	--	--	--
Zero-Emission Agricultural Utility Terrain Vehicle Rebates <sup>1</sup>	\$0.1	--	--	--
Clean Truck and Bus Voucher Incentive Project	\$95	658.5	19.98	23.02

<sup>1</sup> No emission reductions were reported for these projects

<sup>2</sup> See the [Advanced Technology Demonstrations](#) website for details.

This Appendix includes a detailed status update for HVIP which did not receive any AQIP funding during the status update period, but utilized AQIP funds allocated prior to FY 2022-23 and was not complete before publication of the last AQIP biennial report.

## **Clean Truck and Bus Voucher Incentive Project**

### *Overview*

The Clean Truck and Bus Voucher Incentive Project (HVIP) is the cornerstone of the California Air Resources Board's (CARB) advanced technology heavy-duty incentives, providing funding since 2010 to support the transformation to zero-emission vehicles (ZEV) in the heavy-duty on-road market, as well as supporting investments in other emerging technology to achieve substantial greenhouse gas reductions and help meet health-based ambient air quality standards.

Voucher incentives complement other programs in CARB's heavy-duty funding portfolio by providing a streamlined, first-come, first-served application process without requiring the scrapping of an existing vehicle. HVIP provides vouchers to participating dealers to reduce the incremental cost of eligible vehicles at the point-of-sale. This streamlined approach, with eligible vehicles and preset voucher amounts, has proven to be popular with vehicle dealers, manufacturers, and California fleets. HVIP typically receives funding through Low Carbon Transportation Investments with more recent funding from the General Fund. However, a small portion of HVIP's funding had come from AQIP, including \$25 million in FY 2020-21.

### *Program Benefits*

HVIP incentives drove early manufacturing production and fleet acceptance of zero-emission truck and bus technologies, preparing the market for regulations such as Innovative Clean Transit, Advanced Clean Trucks, and Advanced Clean Fleets.

### *Program Status as of June 30, 2024*

HVIP received its last AQIP allocation of \$25 million in FY 2020-21 and those funds have been expended on vouchers for 198 vehicles. The types of vehicles funded by the FY 2020-21 funds can be seen in Table 11. Approximately \$95 million in AQIP funds have been allocated to the project since FY 2009-10.

**Table 11: Number of Vehicles Funded by AQIP FY 2020-21 and FY 2021-22 Funds**

Weight Class	Technology	# of Vehicles Funded
MD	ZEV	26
LHD	ZEV	10
	ePTO	7
MHD	ZEV	72
HHD	ZEV	72
	Low-NOx Engine	11
Total		198

The [HVIP webpage](#) provides an interactive data tool for funded vehicles, real-time accounting of voucher funds remaining, and other project information

*Emission Benefits*

Funding made available in 2021 was a combination of AQIP and Low Carbon Transportation Funding, and vehicles have now been deployed, and emission reductions can be tied directly to the funding dollars. Table 12 provides emission reductions attributable to AQIP, calculated using the [Fiscal Year 2020-21 Funding Plan for Clean Transportation Incentives. Appendix B Emission Reductions Quantification Methodology](#).

**Table 12: Statewide HVIP Criteria Pollutant and Greenhouse Gas Emission Reductions Attributable to AQIP**

Time Period	NOx (tons)	ROG (tons)	PM 2.5 (tons)	CO <sub>2</sub> (MTCO <sub>2</sub> e)
Emission Reductions from FYs 2020- 21 and 2021-22 Funding	54.50	0.98	2.02	60,490
Program Cumulative <sup>1</sup> to June 30, 2024	658.5	19.98	23.02	300,490

<sup>1</sup>Based on approximately 2,628 vehicles funded.

### *Future Direction*

Though no longer funded by AQIP, HVIP continues to be a successful project with high demand. It's role in the funding portfolio has shifted from early market support to now focusing on equity and supporting the unique needs of small fleets and small businesses.