

Incentives for Medium- and Heavy-Duty Zero Emission Vehicles Program (iMHZEV) Questionnaire

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Clean Energy Canada is a climate and clean energy program within the [Morris J. Wosk Centre for Dialogue at Simon Fraser University](#).

We are pleased to submit these comments as part of Transport Canada's consultations on its *Incentives for Medium- and Heavy-Duty Zero Emission Vehicles Program (iMHZEV)*.

Clean Energy Canada's primary point of contact on the iMHZEV program should be Evan Pivnick (evan@cleanenergycanada.org). Please do not hesitate to contact us if you have any further questions.

Summary of Recommendations

Clean Energy Canada is supportive of many of the proposed iMHZEV program parameters presented by Transport Canada on April 26. We commend Transport Canada for drawing from best practices in other jurisdictions, and advancing the program's development and launch in a timely manner.

Purchase incentive programs are a critical policy tool to drive the deployment of zero-emission trucks and are becoming increasingly common in other jurisdictions across North America. Based on a review of these programs, we believe program design and implementation should be guided by the following principles to minimize administrative burden, ensure widespread deployment of zero-emission trucks, and foster learning across government and industry:

- **Transparency:** The program must clearly and proactively communicate timelines, processes, requirements, funding availability and modifications.
- **Simplicity:** The program should be easy to navigate for manufacturers, vendors, and fleets.
- **Accessibility:** The program should be designed to maximize access by the greatest number of fleet types and zero-emission vehicles possible.

- **Adaptability:** The program should emphasize a swift rollout including the ability to course correct by developing an initial model, and then refining it as more data is gathered and the market continues to mature.

Building on these principles, the table below provides a summary of our feedback on the specific parameters of the iMHZEV program.

Design Element	Recommendation
Funding Streams and Permanence	<p>Support: Implement the multi-year incentive program beginning in fiscal year 2022/23.</p> <p>Recommended change: Establish a dedicated funding stream with larger incentives for small fleets and independent owner-operators.</p>
Payment Model and Timing	<p>Support: Create iMHZEV as a point-of-sale incentive with vendors, providing up-front cost reduction and seeking reimbursement following sale/delivery.</p> <p>Recommended change: Structure program as a voucher-incentive program.</p> <p>Support: Clearly articulate the amount of funding available annually, and the timelines for review and approvals.</p>
Vehicle/Technology Eligibility	<p>Support: Make all on-road Class 2b-8 vehicles eligible for the program, excluding transit and school buses.</p> <p>Support: Restrict vehicle eligibility to battery electric vehicles (BEV), plug-in hybrid electric vehicles (PHEV), and fuel cell electric vehicles (FCEV).</p>
Fleet Eligibility	<p>Support: Make public, private and not-for-profit fleets eligible for the program.</p>
Incentive Value	<p>Support: Base incentive value on the gross vehicle weight rating (GVWR) class.</p> <p>Recommended addition: Establish incentives for each GVWR class individually at a level necessary to drive the deployment of zero-emission Medium- and Heavy-Duty Vehicles (MHDVs) within that class.</p> <p>Recommended change: Grant PHEVs a lower incentive value (reduced to 50%).</p>

Incentive Caps	Support: Cap incentives at 10 per fleet within a calendar year.
Integration and Coordination	<p>Support: Combine iMHZEV with other municipal and provincial incentive programs so long as the combined incentive value does not exceed 100% the manufacturer's suggested retail price (MSRP).</p> <p>Recommended addition: Limit fleets to either the current Government of Canada tax write-off for zero-emission MHDVs or incentives under the iMHZEV program.</p> <p>Recommended addition: Coordinate with Natural Resources Canada's Zero-Emission Vehicle Infrastructure Program (ZEVIP) and the Canada Infrastructure Bank's (CIB) Zero-Emission Vehicle Infrastructure Initiative to ensure vehicle purchases are supported by associated infrastructure.</p>
Scrappage	Support: Do not include a scrappage requirement to access incentive.
Data Collection and Reporting	Recommended addition: Impose reporting requirements on fleet owners/operators who receive an incentive from the iMHZEV program.

Why Canada needs a medium- and heavy-duty incentive program

Canada has set a target of reducing emissions 40-45% against 2005 levels by 2030. Heavy-duty gasoline and diesel vehicles are responsible for over 9% of Canada's total national emissions and over 30% of transportation emissions—and their contribution is growing.¹ By 2031, freight emissions are expected to surpass passenger-vehicle emissions.² The long capital lifetimes of MHDVs mean that once a new diesel truck is purchased, it will be polluting for decades. Canada must act quickly to reduce emissions in this sector.

Despite technology availability, zero-emission MHDV sales are still limited to-date. There are more than 125 different zero-emission vehicles available across Class 2b-8 vehicles in North America, and this number is anticipated to nearly double by 2023.³ At least 55 manufacturers have

¹ Environment and Climate Change Canada. *National Inventory Report 1990-2019: Greenhouse Gas Sources and Sinks in Canada*. https://publications.gc.ca/collections/collection_2021/eccc/En81-4-2019-1-eng.pdf. (2021).

² Environment and Climate Change Canada. *Discussion paper for heavy-duty vehicles and engines in Canada: transitioning to a zero-emission future*. https://www.canada.ca/content/dam/eccc/documents/pdf/cepa/21199_HDV%20Discussion%20Document_Dec%2016_MinO%20Approved_Final_EN.pdf. (2021).

³ Nescaum. *Multi-State Medium and Heavy-duty Zero Emission Vehicle Action Plan*. <https://www.nescaum.org/documents/mhd-zev-action-plan-public-draft-03-10-2022.pdf>. (2022).

announced plans to produce battery-electric MHDVs in the next few years, with some manufacturers also announcing plans for hydrogen fuel-cell electric vehicles (FCEV) for Class 4-8 MHDVs.⁴

However, the International Council on Clean Transportation (ICCT) found that only 570 zero-emission HDVs were sold in the United States and Canada in 2019, representing less than 0.1% of the on-road commercial truck and bus market.⁵ In 2020, Canada only saw 120 zero-emission MHDVs sold in the country, and all of them were buses.⁶

Establishing a purchase incentive program for zero-emission MHDVs is one of the most important steps the federal government can take to accelerate the deployment of zero-emission vehicles in Canada. It will help to address one of the primary barriers to deployment: the high upfront costs of zero-emission vehicles and price differential when compared to diesel models.⁷ This barrier is particularly acute for small fleet operators who often lack access to upfront capital. According to Canadian Industry Statistics, 82.8% of “truck transportation” was considered “micro”, employing less than five people.⁸

The iMHZEV purchase incentive program must be part of a broader zero-emission MHDV policy package that addresses both the demand and supply side barriers to uptake. This package should also include infrastructure incentives to help fleet operators deploy the necessary charging infrastructure and the creation of a MHDV sales mandate to ensure an adequate supply of zero-emission MHDVs.

Designing an effective iMHZEV program

Overall, Clean Energy Canada is very supportive of the program parameters proposed by Transport Canada to structure the iMHZEV. The proposed approach reflects many best practices Clean Energy Canada has identified to-date, and we welcome the urgency with which program implementation is moving forward.

⁴ *ibid.*

⁵ International Council on Clean Transportation. *Race to Zero: How Manufacturers are Positioned for Zero-Emission Commercial Trucks and Buses in North America*. <https://theicct.org/publication/race-to-zero-how-manufacturers-are-positioned-for-zero-emission-commercial-trucks-and-buses-in-north-america/>. (2020).

⁶ Made in North America: Manufacturers Invest in Zero-Emission Buses and Trucks. *International Council on Clean Transportation*. <https://theicct.org/made-in-north-america-manufacturers-invest-in-zero-emission-buses-and-trucks/>. (2021).

⁷ Nescaum. *Multi-State Medium and Heavy-duty Zero Emission Vehicle Action Plan*. <https://www.nescaum.org/documents/mhd-zev-action-plan-public-draft-03-10-2022.pdf>. (2022).

⁸ Canadian Industry Statistics: Truck Transportation. *Government of Canada*. <https://strategis.ic.gc.ca/app/scr/app/cis/businesses-entreprises/484>. (2022).

The following section canvasses the primary design recommendations, identifying where we support the approach proposed by Transport Canada and where we have recommended changes or additions.

Funding Streams and Permanence

Support: Implement the multi-year incentive program beginning in fiscal year 2022/23.

Multi-year funding is important to build awareness of the program while providing predictability and cost certainty to fleet owners and vendors. Swift implementation in the 2022-23 fiscal year will also avoid a situation in which fleet owners delay capital purchases while waiting for the iMHZEV program to launch.

Accelerating deployment of MHDVs on Canadian roads must be a priority to build confidence in these technologies and allow government, industry, and utilities to get an applied understanding of the opportunities and challenges these vehicles present. That said, Transport Canada should ensure it gives itself the ability to course correct and adjust the program in later years as needed. The most effective incentive programs in other jurisdictions developed an initial model and then refined it each year as they gathered more data and saw how fleets reacted.⁹ Furthermore, the market will continue to mature over the lifetime of this program; adjustments that reflect changes in technology and cost will maximize the program's efficacy over time.

Recommended change: Establish a dedicated funding stream with larger incentives for small fleets and independent owner-operators. Larger fleet operators will be better placed to take advantage of incentive programs because they have more capacity to move quickly and have access to multiple sources of secure funding with which to make capital purchases. Therefore, a separate stream of funding should be reserved for small fleets and independent owner-operators, with incentives covering a larger portion of the cost differential for these groups. Transport Canada should determine what constitutes “small” in consultation with fleet operators.

This dedicated funding stream should be additional to the establishment of a cap on the total number of incentives any individual fleet can access in a fiscal year, which on its own will not guarantee that funding is available for smaller fleets. Having a dedicated fund will also allow Transport Canada to proactively seek out small fleets and independent owner-operators, directly supporting their participation, without fear that funding may not exist by the time the fleet owner is

⁹ As part of its [annual proposed fiscal plan](#), the California Air Resources Board (CARB) reviews and updates its MHDV purchase incentive program, known as the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project (HVIP). Annually, CARB [lays out the changes](#) that have been proposed, informed by a variety of factors including a review of the previous years program, ongoing reviews on MHDV technology maturity, and direction from the government regarding priorities.

ready to make a vehicle purchase. The size of this funding stream can be adjusted over time as Transport Canada observes the level of uptake.

Payment Model and Timing

Support: Create iMHZEV as a point-of-sale incentive with vendors, providing up-front cost reduction and seeking reimbursement following sale/delivery. The proposed approach of structuring the iMHZEV as a [point-of-sale](#) incentive with vendors covering the cost reduction and seeking reimbursement from the government is in line with best practices in other jurisdictions. This design will reduce the burden on fleet owners, increase accessibility to fleets of different sizes, provide an immediate cost reduction for the purchaser, and provide certainty for the vendor.

Recommended change: Structure program as a voucher-incentive program. Transport Canada has proposed a point of sale incentive program based on a hybrid of the current iZEV program and California's HVIP program. While this approach is in the right general direction, we recommend that Transport Canada take the further step of structuring the iMHZEV incentive program as a voucher-incentive as opposed to a grant program.¹⁰

The two approaches share much in common—both would work on a first-come, first-serve basis with no application period and an immediate discount available at the point of sale. Program administrators would maintain a list of eligible vendors and vehicles, with vendors providing the upfront discount and getting reimbursed from the government after vehicle delivery.

The major difference is around program administration and the effect it has on certainty for vendors. With vouchers, funding is set aside for each voucher immediately upon request, creating certainty that as long as the request has been submitted, the funding has been allocated.¹¹ While there would still be a review of the application and multiple steps to completing the voucher payment, the funding allocation to the voucher is immediate. On the other hand, a grant program typically requires a review prior to confirming the funding is available and committed to the request. This creates unnecessary uncertainty for vendors and compromises the overall transaction. While this process may work for the iZEV program, the purchase of a light-duty vehicle is both a simpler process and involves less capital. MHDV fleets, on the other hand, will be balancing multiple factors in making purchase decisions of this size, including securing additional capital or loans, determining the timing and cost of deploying infrastructure, and coordinating the iMHZEV

¹⁰ CALSTART, the organization that has led the administration of the HVIP program in California, has [developed a comprehensive guide](#) to developing a voucher-incentive program (VIP). This guide emphasizes the three primary benefits of a VIP: transparency, simplicity and cost-effectiveness.

¹¹ Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project. *California HVIP*. <https://californiahvip.org/>. (2022).; California HVIP. *About HVIP*. <https://californiahvip.org/wp-content/uploads/2021/05/HVIP-Required-Refresher-210517.pdf>. (2021).

program with other available incentives. In short, the more certainty the incentive structure can provide, the better for vendors and fleets.

At least seven U.S. states have some form of voucher incentive program—including California, Illinois, Massachusetts, New York, New Jersey, Vermont and Virginia—and these programs have been effective.¹² HVIP, a program overseen by the California Air Resources Board (CARB), has helped to deploy more than 3,000 zero-emission trucks and buses since 2010, with 61% of all zero-emission trucks deployed in the U.S. having gone to California.¹³ The California Legislative Analyst's Office found that the HVIP program was one of the most cost-effective ways to reduce near-term GHG emissions.¹⁴ New York, which has the second highest concentration of zero-emission trucks after California, modeled its VIP (NYTVIP) off the HVIP program.¹⁵

If Transport Canada chooses to maintain a grant-based program, it is recommended that it publish a clear timeline for the approval process and ensure adequate administrative resourcing to respect those timelines.

Support: Clearly articulate the amount of funding available annually, and the timelines for review and approvals. Whether structuring the program to provide grants or vouchers, certainty and proactive communication will be critical for both fleet owners and vendors to make informed business decisions. Fleets will plan their purchasing decisions around this program, working to align other factors such as securing additional capital, deploying infrastructure, and applying for other incentives. This will be particularly important to ensure smaller fleets that have less capacity, lower access to capital, and less ability to be nimble are still able to access the incentives in a predictable manner.

Additionally, it will be important that Transport Canada clearly communicates where an application is in the queue for review, and when funding for the program is running out.

¹² Alternative Fuels Data Center: Federal and State Laws and Incentives. *U.S. Department of Energy*. <https://afdc.energy.gov/laws/search>. (2022)

¹³ California Air Resources Board. *Proposed Fiscal Year 2021-22 Funding Plan for Clean Transportation Incentives*. https://ww2.arb.ca.gov/sites/default/files/2021-10/fy21-22_fundingplan.pdf. (2021); CALSTART. *Zeroing in on Zero-Emission Trucks*. https://calstart.org/wp-content/uploads/2022/02/ZIO-ZETs-Report_Updated-Final-II.pdf. (2022).

¹⁴ Legislative Analyst's Office. *The 2022-23 Budget Zero-Emission Vehicle Package*. <https://lao.ca.gov/Publications/Report/4561>. (2022).

¹⁵ CALSTART. *Zeroing in on Zero-Emission Trucks*. https://calstart.org/wp-content/uploads/2022/02/ZIO-ZETs-Report_Updated-Final-II.pdf. (2022); Truck Voucher Incentive Program. *New York State Energy Research & Development Authority*. <https://www.nyserda.ny.gov/All-Programs/Truck-Voucher-Program>. (2022)

Vehicle/Technology Eligibility

Support: Make all on-road Class 2b-8 vehicles eligible for the program, excluding transit and school buses. The approach outlined by Transport Canada will ensure the majority of zero-emission vehicles are eligible for funding through the program, maximizing its potential impact and accessibility to different fleets. The exclusion of transit and school buses is warranted given the government has already established effective programming for the deployment of zero-emission buses.¹⁶

Support: Restrict vehicle eligibility to battery electric vehicles (BEV), plug-in hybrid electric vehicles (PHEV), and fuel cell electric vehicles (FCEV). Limiting funding to zero-emission vehicles and plug-in hybrids will ensure that resources are being used to accelerate the deployment of the cleanest technologies and that the government is maximizing the emissions reductions achieved through this program.¹⁷ Allowing all zero-emission technologies to be eligible for the incentive will provide flexibility and allow the market to compete on the best technology for a specific vehicle class.

As new zero-emission vehicles are constantly becoming available, Transport Canada will need to establish a system to conduct ongoing, quick and transparent determinations of new vehicle eligibility.

Fleet Eligibility

Support: Make public, private and not-for-profit fleets eligible for the program. Ensuring the program is accessible to multiple types of fleets—including public, private, and not-for-profit fleet operators—maximizes the number of zero-emission vehicles that may be deployed through the program. Furthermore, it spreads awareness of zero-emission MHDV across the greatest number of different fleets, expanding capacity for future deployment.

¹⁶ Zero Emission Transit Fund. *Infrastructure Canada*.

<https://www.infrastructure.gc.ca/zero-emissions-trans-zero-emissions/index-eng.html>. (2022); Green Infrastructure. *Canadian Infrastructure Bank*. <https://cib-bic.ca/en/sectors/green-infrastructure/>. (2022).

¹⁷ While both California's [HVIP](#) and New York's [NYTVIP](#) include incentives for hybrid vehicles, it is not recommended that a Canadian incentive program include this provision. HVIP was first launched in 2009, at a time when MHDV battery technology was in its infancy. Since that time, they have gradually shifted their emphasis toward the deployment of zero-emission technology, including specific set-asides for zero-emission vehicle categories. For Canada to meet its targets, it needs to prioritize the deployment of zero-emission MHDVs rather than near-zero vehicles that will continue to produce greenhouse gas emissions. Furthermore, the technological maturity of battery-electric technology means many segments already have cost-effective options that could be deployed on Canadian roads today.

Incentive Value

Support: Base incentive value on the gross vehicle weight rating (GVWR) class. Providing a base incentive for each gross-vehicle weight rating (GVWR) class reflects the reality that battery size is the greatest determinant of battery-electric vehicle cost. Therefore, larger incentives will be needed for higher classes of vehicles, which are heavier and require larger batteries. Incentives can be gradually phased out as the market matures and the upfront price differential between zero-emission and diesel vehicles shrinks.

Recommended addition: Establish incentives for each GVWR class individually at a level necessary to drive the deployment of zero-emission Medium- and Heavy-Duty Vehicles (MHDVs) within that class. It is critical that a significant portion of the up-front cost differential between zero-emission MHDVs and diesel vehicles is covered to adequately incentivize faster deployment. California's HVIP program originally covered 100% of the cost differential, but was lowered in 2020 in large part to maximize the number of vehicles they were able to support.¹⁸ Transport Canada should aim to cover at least 50% of the incremental cost of zero-emission vehicles across Class 2b-8 vehicles.

However, while the general rule will be that larger vehicle classes will require larger incentives, the actual incentive values shouldn't be set by a linear process. Zero-emission technologies are not uniformly available across classes and vehicle types. This will have an impact on the incentive value necessary to see deployment of zero-emission vehicles within certain classes. Additionally, the federal government or Transport Canada may prioritize the deployment of vehicles within a certain class, increasing the value of the incentive it wishes to offer.

The incentive amount may vary year-to-year as technology improves, and the incremental cost of zero-emission vehicles change in a given class.

Recommended change: Grant PHEVs a lower incentive value (reduced to 50%). We agree that the incentive program should allow the market to compete on the best technology for a given vehicle class; however, certain technologies warrant different treatment. In the case of PHEVs, the incentive value should be lowered to recognize the higher emissions that are associated with their operation. While PHEVs do offer emission reduction benefits compared to a diesel vehicle, the deployment of zero-emission vehicles (either BEV or FCEV) should be prioritized. In California, PHEVs receive only 50% of the incentive value offered to a ZEV in that same vehicle class.¹⁹

¹⁸ California Air Resources Board. *Proposed Fiscal Year 2020-21. Funding Plan for Clean Transportation Incentives.* https://ww2.arb.ca.gov/sites/default/files/2020-11/proposed_fy2020-21_fundingplan.pdf. (2020).

¹⁹ Funding Updates. *California HVIP.* <https://californiahvip.org/funding/>. (2022).

In order to implement this decreased incentive value, Transport Canada could consider establishing a “modifier” that it can apply to the incentive offered for PHEV regardless of vehicle class.

The use of “modifiers” has been used by California with the HVIP program as a strategic tool to enhance or reduce the incentive value for specific vehicle technologies and/or fleets, in line with the government’s objectives. The use of this tool can be communicated easily to fleets by producing a “modifier” table that is publicly accessible.

Incentive Caps

Support: Cap incentives at 10 per fleet within a calendar year. Establishing a cap on the number of vouchers a fleet can request in a calendar year will help ensure funding is available to the greatest number of fleets while allowing early adopters to secure multiple incentives. California’s HVIP program currently limits a fleet to 30 vouchers in order to “reduce fiscal drain on the program, allow more fleets to participate, and focus resources on aiding fleets taking their first steps into the advanced technology market.”²⁰ The incentive cap could be increased or decreased in future years depending on the uptake among different fleets and the iMHZEV’s priorities at the time, as these may evolve over the program’s life.

Integration and Coordination

Support: Combine iMHZEV with other municipal and provincial incentive programs so long as the combined incentive value does not exceed 100% the manufacturer’s suggested retail price (MSRP). Allowing iMHZEV to be stackable with other municipal and provincial government incentives such as the MHDV rebate programs B.C. and Quebec have in place will help further accelerate the deployment of zero-emission MHDVs.²¹

Recommended addition: Limit fleets to either the current Government of Canada tax write-off for zero-emission MHDVs or incentives under the iMHZEV program. Fleets should not be able to access both the Government of Canada’s current tax write-off for business investments in eligible zero-emission MHDVs and the iMHZEV incentive.²² They should be directed to choose one federal government incentive or the other.

²⁰ California Air Resources Board. *Proposed Fiscal Year 2021-22 Funding Plan for Clean Transportation Incentives*. https://ww2.arb.ca.gov/sites/default/files/2021-10/fy21-22_fundingplan.pdf. (2021).

²¹ B.C. operates the [Speciality Use Vehicle Incentive Program \(SUVI\)](#), where purchasers of eligible vehicles can receive a rebate for up to 33% or \$100,000, whichever is lower. [Quebec’s Écocommissionage program](#) provides a range of financial support for vehicle purchases, technology upgrades, and fleet logistics, but the vehicle purchase incentive operates as a rebate after purchase rather than an upfront voucher, reducing the overall capital cost

²² Expanding Tax Support for Business Investment in Zero-Emission Vehicles. Department of Finance Canada. <https://www.canada.ca/en/department-finance/news/2020/12/expanding-tax-support-for-business-investment-in-zero-emission-vehicles.html>. (2022).

While no public analysis was identified to-date documenting the levels of uptake or efficacy of the tax-write off program, its degree of uptake will likely increase as the iMHZEV program is launched. This risks the government of Canada providing subsidies beyond those seen in other jurisdictions as well as covering the majority of the cost of deploying zero-emission MHDVs.

In general, point-of-sale vouchers are more effective at helping fleets transition because they minimize administrative burden through their simple program design.²³ Furthermore, point-of-sale vouchers are preferred by MHDV fleet owners and dealers because they lower the quantity of upfront capital a fleet is required to have, increasing the accessibility of the program to a greater number of fleet operators.²⁴

Recommended addition: Coordinate with Natural Resources Canada's Zero-Emission Vehicle Infrastructure Program (ZEVIP) and the Canada Infrastructure Bank's (CIB) Zero-Emission Vehicle Infrastructure Initiative to ensure vehicle purchases are supported by associated infrastructure.²⁵ These programs must proceed with the same urgency as the iMHZEV program, as deployment of charging and other associated infrastructure must precede vehicle purchasing in most fleets to be successful.²⁶ The lack of infrastructure deployment and the cost associated with it is considered one of the primary barriers to zero-emission MHDV deployment.²⁷

Infrastructure is built into a fleet's total-cost of ownership calculations and is used to determine the viability of zero-emission MHDVs, making government support for its deployment essential. The exact ratio of charge points required per vehicle varies from a 1:1 ratio to 0.5:1, depending on truck type and scale of deployment of zero-emission MHDVs.²⁸ The International Council for Clean

²³ CALSTART. Welch, D. and Mandel, B. *Voucher Incentive Programs: A Tool for Clean Commercial Vehicle Deployment*. https://calstart.org/wp-content/uploads/2020/10/CALSTART_VIP_White_Paper.pdf. (2019).

²⁴ CALSTART Drive to Zero. *Moving Zero-emission Freight Toward Commercialization*. <https://globaldrivetozero.org/site/wp-content/uploads/2020/12/Moving-Zero-Emission-Freight-Toward-Commercialization.pdf>. (2020).

²⁵ Zero Emission Vehicle Infrastructure Program. *Natural Resources Canada*. <https://www.nrcan.gc.ca/energy-efficiency/transportation-alternative-fuels/zero-emission-vehicle-infrastructure-program/21876>. (2022).; Green Infrastructure. *Canadian Infrastructure Bank*. <https://cib-bic.ca/en/sectors/green-infrastructure/>. (2022).

²⁶ While both a vehicle and an infrastructure incentive will be necessary, they should be provided through separate but coordinated programs. Effective purchase incentive programs should be simple, streamlined programs working on a first-come, first-serve basis. Infrastructure funding can be more complex and require a case-by-case evaluation. [California moved away](#) from funding both through the HVIP program for this reason. Their [new infrastructure program](#), the Energy Infrastructure Incentives for Zero- Emission Commercial Vehicles, (EnergyIZE Commercial Vehicles) is distinct from the HVIP program.

²⁷ Nescaum. *Multi-State Medium and Heavy-duty Zero Emission Vehicle Action Plan*. <https://www.nescaum.org/documents/mhd-zev-action-plan-public-draft-03-10-2022.pdf>. (2022).

²⁸ International Council for Clean Transportation. *Estimating the Infrastructure Needs and Costs for the Launch of Zero-Emission Trucks*. <https://theicct.org/publication/estimating-the-infrastructure-needs-and-costs-for-the-launch-of-zero-emission-trucks/>. (2019).

Transportation estimates that infrastructure costs can add more than \$70,000 per battery electric long-haul-trailer, and more than \$25,000 per delivery truck, amounting to 7%-9% of life operating costs.²⁹

The lack of infrastructure is a growing priority for other jurisdictions. California recently announced the U.S.'s first commercial vehicle fleet infrastructure incentive program called EnergiIZE to complement HVIP.³⁰ This program, funded by the California Energy Commission (CEC), provides incentives for zero-emission vehicle infrastructure equipment for medium- and heavy-duty battery electric and hydrogen fuel cell vehicles in California on a project basis. Despite HVIP and EnergiIZE being funded by different bodies (CARB and CEC respectively), they are both administered by Calstart, which ensures close coordination. Moreover, when fleets are applying to HVIP, they are prompted to also apply for EnergiIZE.³¹

Scrappage

Support: Do not include a scrappage requirement to access incentive. In the early years of this program, the government should not include a scrappage requirement for accessing incentive funding. Scrappage requirements risk excluding certain fleets that do not have older vehicles or who rely on revenue from secondary market sales.³² Scrappage requirements can also operate as a disincentive for companies looking to grow by adding zero-emission MHDVs to their fleet.³³ Scrappage requirements could be reconsidered at a later date once Canada sees higher levels of zero-emission vehicle deployment to incentivize the removal of diesel vehicles.

Data Collection and Reporting

Recommended addition: Impose reporting requirements on fleet owners/operators who receive an incentive from the iMHZEV program. The program should require one to three years of bi-annual reporting on vehicle utilization by fleet operators who purchase vehicles with support from the iMHDV program. Collecting data on vehicle utilization will help assess the benefits of zero-emission MHDVs, determine whether the program is achieving its objectives, and identify opportunities for program reform. It also allows the program to adapt its approach year-to-year based on market changes, lessons learned, and feedback from fleets and vendors. Any changes that are made should be communicated clearly and well in advance of reopening funding for the

²⁹ Ibid.

³⁰ Incentives for Commercial Zero Emission Vehicle Infrastructure. *EnergiIZE Commercial Vehicles*. <https://www.energiize.org/>. (2022).

³¹ <https://californiahvip.org/wp-content/uploads/2022/03/Purchaser-Lessee-Terms-and-Conditions-3.15.2022.pdf>

³² Nescaum. *Multi-State Medium and Heavy-duty Zero Emission Vehicle Action Plan*. <https://www.nescaum.org/documents/mhd-zev-action-plan-public-draft-03-10-2022.pdf>. (2022).

³³ Ibid.

program. Data collection and reporting requirements should be structured to minimize the administrative burden on fleets.

HVIP requires purchasers to complete an annual usage survey and questionnaire for three years following the receipt of an incentive.³⁴ The surveys capture key data regarding vehicle usage as well as qualitative feedback from the vehicle operators. Fleets that fail to complete surveys as required in their agreement are prohibited from participating in HVIP and other incentive programs in the future.

Additionally, the New York Truck Voucher Incentive Program (NYTVIP) requires a usage report to be filed twice a year for the first three years after receiving an incentive.³⁵ To keep the process simple for fleet owners, the program relies on a brief, online form with basic questions.³⁶

³⁴ California HVIP. *Implementation Manual for the Hybrid and Zero-Emission Truck and Bus Voucher Incentive Project*. (HVIP). <https://californiahvip.org/wp-content/uploads/2022/03/HVIP-FY21-22-Implementation-Manual-03.15.22.pdf>. (2022).

³⁵ NYSERDA. *New York Truck Voucher Incentive Program: Implementation Manual*. <https://portal.nyserda.ny.gov/servlet/servlet.FileDownload?file=00P8z000000nuMvEAI>. (2022).

³⁶ BEV specific questions include: vehicle odometer readings, or equipment hours of use, the amount of electricity used for battery charging (kWh) for the applicable reporting period, maintenance and repair information, including associated costs and vehicle down time due to maintenance and repair, maintenance and repair reporting for similar diesel-powered vehicles in enough detail to allow a technical evaluation and feedback from drivers/users of BEVs funded under the Program including any issues, positive or negative, on the BEV driving experience.