DESIGNING INCENTIVE PROGRAMS FOR MEDIUM- AND HEAVY-DUTY ELECTRIC VEHICLE CHARGING INFRASTRUCTURE

Lessons Learned from Programs and Industry Experiences to Date

By Ben Sharpe, Moe Khatib, and Lucy McKenzie

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Contents

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Executive Summary

Electric trucks have been gaining some momentum. Prior to 2021, U.S. sales of electric medium- and heavy-duty vehicles (MHDVs, class 2B – 8) were only a few hundred per year [1]. In 2024, sales were more than 120,000. While the majority of this growth has been concentrated in class 2B – 3 segments like delivery vans and smaller trucks, sales of larger class 4 – 8 vehicles are also beginning to grow [2]. The number of vehicle choices is also increasing: as of 2025, 175 class 3 – 8 electric MHDV models are available in the United States, up from 30 in 2019 [3]. Still, electric vehicles remain a small fraction of the overall market: approximately five percent of total class 2B – 8 vehicles sales [1]. And significant barriers remain, including higher upfront vehicle and charging costs, charger energization delays at some locations, and reduced or uncertain federal and state policy support.

Electric trucks need charging infrastructure that can meet the demands of larger vehicles with varied duty cycles. Atlas analysis suggests that the majority of class 2B – 3 electric vehicles are expected to charge overnight at private or shared depots or residences, and can be served by "Level 2" AC charging ports at power levels up to 19kW [4]. Some larger, class 4 – 8 vehicles will require DC fast chargers at depots and en-route locations.

Charger incentive programs can play a pivotal role in making MHDV electrification more economically viable in these early stages of market development. To understand how to make these programs most effective, Atlas conducted interviews with 16 stakeholders, including EV charging developers, state agencies, fleet operators, and policy experts. The resulting recommendations can guide programs that lower the upfront or ongoing costs of charging infrastructure, either through direct subsidies (e.g. vouchers, tax rebates, grants), loans or loan guarantees, or non-monetary support (e.g. fleet advisory services).

Table ES-1 summarizes the resulting recommendations. Interviewees suggested that, as much as possible, programs should employ flexible designs that accommodate the diverse needs of commercial fleets. Key needs identified include stakeholder-centered program design with meaningful consultation during development, better integration between vehicle and charger funding to avoid timing mismatches, and reduced administrative burden (especially to support smaller fleets). Interviewees emphasized improving cash flow through milestone payments rather than full reimbursement models (which can create financial barriers, especially for smaller companies). Utility coordination emerged as crucial, with programs needing standardized processes and early engagement incentives to navigate grid integration. Any efforts to expand program accessibility should link to specific goals and tracking. Finally, interviewees recommended programs establish dedicated funding sources where possible and build in flexibility to adapt as markets mature.

Table ES-1. Key Issues and Recommendations for Electric MHDV Charger Incentive Program Design

Issue	Recommendations
Centering Stakeholders & Flexibility	• Engage diverse stakeholders during program design, including fleets of different sizes and vehicle types • Design programs to enable accessibility and flexibility where possible, avoiding "one size fits all" approaches • Include mechanisms to adapt programs based on ongoing feedback
Integrating Vehicle & Charger Funding	• Ensure coordination between funding that's allocated for vehicles versus charging • If possible, use joint applications that assess vehicle and charging program eligibility together • Set clear readiness criteria linking vehicle and charging infrastructure timelines • Offer education and technical assistance in addition to direct financial incentives, to help fleets navigate planning
Rightsizing Charging	• Provide technical assistance to help applicants determine appropriate charging types and power levels • Set incentive amounts that reflect cost differences between charging types and power levels but do not encourage unnecessarily high-power installations, especially at homes and depots • For en-route charging, avoid evaluation criteria that penalize higher-powered (e.g., 350 kW, 1MW) — and therefore higher-cost per port — charging if it is the best fit to serve targeted vehicle types, driver needs, and duty cycles
Administrative Burden	• Streamline administration with "friction audits," standardized documentation, and plain-language guidance • Consider tiered application processes, with simple determinants of basic eligibility followed by additional details required only as projects advance in the program • Automate reporting requirements where possible through software integrations

Issue	Recommendations
Payment Structure	• Support awardees' cash flow with milestone payments, where fiscally feasible and able to manage risks • Establish and follow clear, predictable reimbursement timelines • Consider offering a higher portion of payment be made upfront for smaller firms, and partnering with financial institutions to provide bridge funding
Program Accessibility	• Set clear program accessibility goals and track progress • Consider providing extra support for small fleets and disadvantaged communities through application assistance, reduced match requirements, and simplified applications • Expand outreach to underserved groups and ensure fair geographic distribution of funds
Utility Coordination	• Strengthen utility coordination through readiness criteria, standardized processes • Facilitate regular communication among fleets, utilities, and program administrators • Support and design around complementary utility make-ready programs • Work with utilities and regulators to encourage development and maintenance of hosting capacity maps for loads
Program Sustainability	• If possible, establish sustainable, goal-aligned funding sources • Develop contingency plans for reduced funding scenarios that maintain effectiveness while reducing scope • Define clear metrics and triggers for program modifications • Design flexible programs that adjust incentive levels and structures as markets and costs evolve

Background

Electric medium- and heavy-duty vehicles (MHDVs) are still an emerging technology in the United States, but their growth has accelerated in recent years. Prior to 2021, sales of electric MDHVs were very limited, with only a few hundred vehicles entering the market annually. By 2024, the market had expanded significantly, with more than 120,000 Class 2B – 8 battery electric trucks sold nationwide in that year [2]. This growth highlights both increased market development and a broader recognition that these vehicles are critical to meeting climate and air quality goals.

Several states have taken the lead in supporting MHDV electrification through incentive programs that fund vehicle purchases and charging infrastructure. Incentives are useful in these early market stages: even where the total cost to own zero-emission and internal combustion vehicles is comparable over their useful life, the upfront cost of zero-emission trucks often remains a barrier; and charging infrastructure requires significant capital investment. By helping to offset these costs, incentives improve the economics for fleets and make early adoption more feasible.

State MHDV charger incentive programs offer support to reduce the cost of providing charging infrastructure. Funding mechanisms include vouchers, grants, rebates, loans, or loan guarantees for the purchase, installation, make-ready wiring, and/or operation of charging. Some programs also offer technical assistance or other forms of non-monetary support to help fleets navigate the electric transition. These efforts are often driven by a combination of environmental, health, economic, and equity goals. They can also support local economic development by creating jobs and positioning states as leaders in a growing sector.

Funding for MDHV charging programs has typically come from federal, state, and utility sources. For example, Oregon's programs have been funded through the "Climate Equity and Resilience Through Action" initiative, which received support from the Climate Pollution Reduction Grant program established under the Inflation Reduction Act. Similarly, California has used a combination of state cap-and-trade revenue and federal funding from the Clean Heavy-Duty Vehicle program to support both fleet vehicle incentives and charging station deployment.

Texas has deployed the Texas Emissions Reduction Plan (TERP), which includes programs like the Emissions Reduction Incentive Grants (ERIG) and the Seaport and Rail Yard Areas Emissions Reduction (SPRY) Program that provide grants for heavy-duty vehicle charging infrastructure and drayage equipment in eligible counties [5]. The North Central Texas

Council of Governments received $85 million in federal CFI funding, including $15 million for electric vehicle charging across the Dallas-Fort Worth region [6].Illinois received $100 million through the EPA's Charging and Fueling Infrastructure program for its E-FREIGHT (Equitable Future-Ready Electrification Infrastructure for Green Heavy-duty Transportation) initiative, which will deploy 14 publicly accessible MHDV charging stations along priority freight corridors with over 300 charging ports [7].

The Clean Corridor Coalition—a partnership between New Jersey, Connecticut, Delaware, and Maryland—was awarded nearly $249 million from EPA's Climate Pollution Reduction Grant program to install 24 freight truck charging sites with several hundred charging ports along the I-95 corridor, one of the nation's busiest freight routes [8]. Other states, like New York and Massachusetts, have blended state clean energy funds with federal Volkswagen Settlement funds or Department of Energy grants to provide rebates for MDHV charging infrastructure.

Many utilities around the country cover partial or full costs for make-ready infrastructure for MHDV charging, and/or offer advisory services [9]. In California’s investor-owned utility service territories, ratepayers cover the cost of line extensions and electrical distribution infrastructure for EV charging, as directed by Assembly Bill 841 in 2020 [10].

Methods

To inform this report, Atlas completed 16 interviews (see Figure 1) with:

- State agency employees who are directly responsible for implementing MHDV charger incentive programs, or who were closely involved in their design,
- EV charging providers, fleets, and shippers that directly or indirectly participate in these programs, and
- Policy experts, who helped to contextualize the state-level approaches within broader industry and regulatory trends.

Figure 1. Interviewees for this Report

EV Charging Providers

- Anonymous charging provider
- ChargePoint
- EVgo
- L-Charge
- WattEV

State Agencies

- California Energy Commission
- California Department of Transportation
- Colorado Energy Office
- New Jersey Board of Public Utilities
- Oregon Department of Environmental Quality

Fleets and Shippers

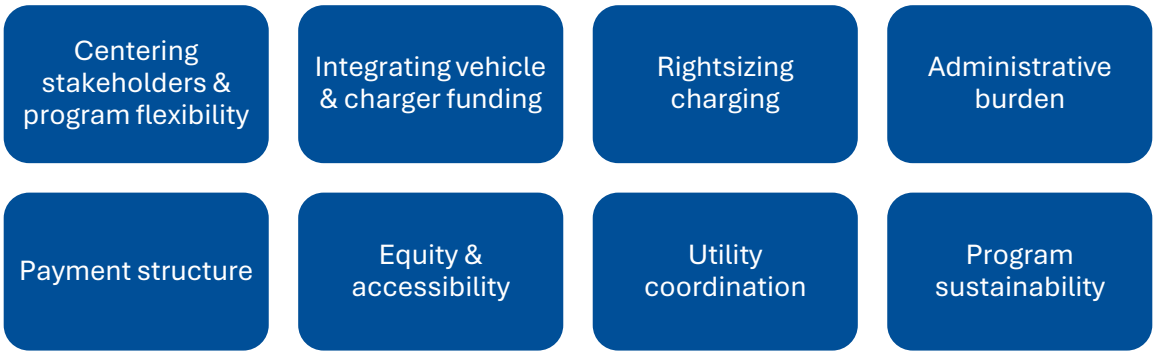
- IKEA
- Lazer Logistics
- Nevoya
- Ryder Systems

Policy Experts

- CALSTART
- National Association of State Energy Officials

Key Issues and Recommendations

Across our interviews, eight key themes emerged:



The following sections provide detail on each theme and outline associated recommendations for designing effective MHDV charging incentive programs.

Centering Stakeholders and Program Flexibility

To better understand priorities for program improvement, we asked interviewees, "If you could change one thing about MHDV incentive programs, what would it be?" The responses revealed two overarching themes: 1) the need for program flexibility and 2) the importance of meaningful stakeholder engagement during program design.

The call for flexibility emerged consistently across interviews. A fleet operator emphasized that "what's most valuable is actually the programs that have more flexibility from a recipient and deployment and operational standpoint," noting that inflexibility has been "a deterrent" to participation. This sentiment was echoed by charging providers and state agencies alike, who recognized that the enormous diversity within the medium- and heavy-duty sector—spanning different fleet sizes, vehicle types, operational models, and business structures—demands adaptable program designs rather than one-size-fits-all approaches.

One charging service provider emphasized one element of this flexibility: "fleets should have the option to apply for vehicle or infrastructure funding based on their specific needs." However, multiple stakeholders also stressed that operators sometimes lack the in-house expertise to navigate programs that are too open-ended. One fleet electrification expert articulated the challenge well: "allocating a large-scale budget is very challenging for folks to figure out" because many small and mid-sized operators "don't have the internal competency, know-how, and knowledge to be able to make that decision as to how they best spend and allocate those funds." This interviewee called for "flexibility with direction,"

providing clear guidance and education while maintaining adaptability to diverse fleet circumstances.

Equally prominent was the emphasis on stakeholder consultation. A charging service provider urged that "government regulators actively seek input from stakeholders and vendors when developing incentive programs," stressing the importance of not just collecting feedback but taking time to "genuinely read the comments, listen to the comments, [and] incorporate that into the design of the program." The Colorado Energy Office's Fleet Zero program was repeatedly cited as a positive example where stakeholder input was effectively integrated into program design. One charging provider who participated in Fleet Zero's design process praised the program for being "very earnest in listening to the input from the stakeholders," contrasting this approach with other programs that only pay "lip service" to stakeholder engagement.

The importance of truly understanding program targets' needs emerged as another critical stakeholder engagement theme. As one program administrator noted, success requires "understanding the target audience and the specific needs of the vehicles involved." This understanding must extend beyond technical specifications to encompass the varying operational constraints, financial capabilities, and administrative capacities that different fleet types possess.

Box 1. Recommendations

- Conduct meaningful stakeholder consultation during incentive design phase, including representatives from different fleet types and sizes, operational models, and business models
- Design programs to enable accessibility and flexibility where possible, aim to avoid one-size-fits-all approaches
- Provide educational resources and assistance to help fleets navigate program options, with differentiated support approaches and communication channels that recognize varying organizational capacities
- Build in mechanisms for program adaptation based on ongoing stakeholder feedback

Integrating Vehicle and Charging Infrastructure Funding

The coordination of vehicle and charging infrastructure incentives emerged as one of the most critical factors in ensuring successful project deployment. We found widespread agreement that the current siloed approach to funding these interconnected elements can create barriers to fleet electrification.

Timing misalignment between vehicle delivery and charging infrastructure readiness can represent one of the most significant challenges to getting electric fleets up and running. Two interviewees cited examples of projects being canceled or delayed due to this mismatch, where fleets received vehicle vouchers but lacked adequate charging infrastructure to make use of them.

State agencies are increasingly recognizing this challenge. As one state representative noted, "project readiness is considered in evaluations" as a key factor in program success. Some states have taken steps to address timing issues, such as readiness tiers that prioritize projects demonstrating coordination between vehicle and charging infrastructure components. A charging developer proposed "providing an incentive adder for infrastructure that aligns with vehicle vouchers" to encourage better synchronization. This approach recognizes that the success of fleet electrification depends not just on the availability of individual incentives, but on their strategic coordination.

Box 2. Recommendations

- Offer education and technical assistance in addition to direct financial incentives, to help fleets navigate planning
- Where possible, develop joint program application processes that evaluate vehicle and charging infrastructure needs together
- Establish clear project readiness and timeline requirements for programs that require applicants to demonstrate coordination between vehicle and charging infrastructure timelines
- Facilitate regular communication between administrators and sponsors of vehicle and charging incentive programs

Rightsizing Charging

As described in Atlas's prior work [11], right-sizing the power levels of charging equipment installed at each home, depot, and en-route location can reduce costs. Avoiding over-powered sites can minimize the cost of installed charging equipment and reduce needed distribution grid infrastructure upgrades at both the site and system levels. On the flipside, avoiding under-powered sites can avert costly retrofits and avoid the cost of any vehicle downtime resulting from insufficient charging availability.

Home and depot charging typically involve more predictable vehicle dwell times and known operational schedules, while en-route charging must accommodate more operational unpredictability and variable driver behavior. Fleets often do not have the expertise to model their electric operations and determine the charging configuration that they need. Technical assistance can be especially valuable in filling this gap. And to make best use of limited program funds and help avoid unnecessary utility lags and costs, charging programs aimed at home or depot charging should ensure that available incentives don't disproportionately increase by power level in ways that encourage fleets to install higher powered charging than is needed.

On the flipside, for en-route charging, policymakers should incentivize the kinds of higher-powered charging that best meets the targeted vehicle types, driver needs, and duty cycles. Drivers and vehicle owners working in commercial transportation and shipping sectors are especially sensitive to undesired downtime, and will therefore assess the viability of enroute charging solutions with reference to how well they match expected breaks and cause least interruption. En-route charging programs should therefore be designed to offer charging speeds that best match these needs, which could mean focusing scoring rubrics on lowest cost per installed kW capacity rather than lowest cost per charging connector.

Box 3. Recommendations

- Provide technical assistance to help applicants determine appropriate charging types and power levels
- Design incentive amounts and structures that reflect cost differences between charging types and power levels but do not encourage unnecessarily high-power installations
- For en-route charging, avoid evaluation criteria that penalize higher-powered (and therefore higher-cost) charging if it is the best fit to serve targeted vehicle types, driver needs, and duty cycles

Administrative Burden

The burden of administrative complexity emerged as one of the most frequently cited barriers to program participation across all stakeholder groups. While we heard universal acknowledgment that some level of documentation and compliance is necessary for responsible stewardship of public funds, the current complexity of many programs is actively deterring participation, particularly from smaller fleets and organizations with limited administrative capacity.

A fleet electrification expert identified "overcomplicating requirements" as creating confusion for applicants, stressing the need for simplicity. This confusion is not merely an inconvenience - it represents a fundamental barrier to achieving program goals.

The documentation burden represents a particular challenge. Applications that require extensive upfront paperwork, such as proving project readiness and completing numerous forms, can slow down the process and discourage participation. One program participant described incentive programs as requiring significant time investments to navigate due to "intricate application processes" that can overwhelm organizations that do not have dedicated grant management staff. Another noted that some programs require such extensive upfront documentation that they seem designed only for projects that would proceed without program funding. Yet another described encountering requirements with a level of granularity that did not make sense, including requirements for vehicle battery cell configurations.

State agencies are increasingly aware of this issue. One state representative noted efforts to simplify the application process especially for school districts, which often lack resources. However, the challenge lies in balancing simplicity with the need for adequate oversight and accountability. As one program administrator acknowledged, agencies must carefully consider "what can you balance" and "what do you need to … mitigate risk?"

The complexity challenge is exacerbated by the fact that different programs often have different requirements. As one fleet operator noted, "companies are having to reconfigure and restructure for each program." This creates a deterrent effect, as the transaction costs of participation in each program can outweigh the benefits, particularly for smaller organizations. One program administrator offered practical advice for other states: "limit the amount of requirements you want to put in the program" and "think about simple ways to enforce" necessary compliance conditions. The key insight is that complexity should be driven by genuine program needs rather than bureaucratic inertia.

Box 4. Recommendations

- Provide clear, plain-language guidance documents with specific examples
- Conduct regular "friction audits" to identify steps that can by simplified
- Develop standardized documentation requirements across programs where possible, even better if these can look similar across states
- Create tiered application processes where basic eligibility can be established simply, with additional details required only as projects advance in the program
- Offer application support, particularly for smaller organizations
- Consider "fast-track" options for straightforward projects or repeat applicants
- Automate reporting requirements where possible through software integrations

Payment Structures

The structure of incentive payments emerged as an important factor in program accessibility and effectiveness. We found strong preferences from program participants for upfront or milestone-based funding models over reimbursement-based approaches, though internal implementation challenges often drive state agencies toward the latter. Understanding and addressing these cash flow dynamics is essential for ensuring programs are accessible to participants of all sizes, particularly smaller fleets and operators with limited upfront capital.

The cash flow challenge is particularly acute for smaller companies or organizations. As a charging service provider explained, traditional reimbursement models can create situations where "the fleet has to pay for the entire thing out of pocket up front and then get reimbursed after," creating financial strain, "especially for the smaller fleets or public entities." This dynamic effectively excludes organizations that lack sufficient working capital, potentially undermining equity goals and slowing electrification. Reimbursement delays can amplify this issue. A fleet operator highlighted delays in reimbursement where "completed projects may take a year to receive payment."

Some programs have found creative solutions. The EPA's Clean School Bus Program was highlighted as an example where upfront funding was provided specifically because the program worked with school districts, “which are extremely cash-strapped organizations.”

Of course, state agencies must balance accessibility with fiscal responsibility. One state agency using a reimbursement model noted that this approach provides important risk mitigation benefits: it ensures program funding is based on actual installed capacity rather than projected costs, and it verifies that projects are completed before funds are disbursed. As an innovative solution, some states are exploring working with green banks to support bridge loans that fill gaps between the time of award and reimbursement.

Box 5. Recommendations

- Prioritize milestone-based payment schedules over full reimbursement models where fiscally feasible and able to manage risks
- Establish clear, predictable reimbursement timelines and adhere to them strictly
- Consider partnerships with financial institutions to provide bridge funding
- Consider providing a higher portion of payments upfront for smaller organizations

Program Accessibility Considerations

Enabling equitable access to incentive programs emerged as a common policy goal among interviewees. By way of example, two existing programs incorporate meaningful equity provisions into their infrastructure funding structures. California's EnergIIZE program offers additional incentives for projects that meet equity criteria, specifically targeting disadvantaged communities, low-income areas, Tribal entities, and small or minority-owned businesses. Colorado's Fleet Zero program similarly prioritizes investments in disproportionately impacted communities and offers enhanced incentives for qualifying entities.

In addition to providing additional outreach to historically disadvantaged groups, the challenge of serving smaller fleets emerged as a consistent theme, for several reasons discussed in prior sections. As one state agency observed, "larger organizations generally manage better than smaller ones" in navigating program complexities. This differential means that without intentional design choices, programs can naturally favor larger, less capacity- and capital-constrained companies.

State agencies are implementing various strategies to address these challenges. One state representative mentioned initiatives that waived match requirements for smaller firms to encourage participation, while another noted that outreach efforts had been expanded to include smaller fleets and minority communities. Another approach that emerged was to

provide application assistance specifically tailored to smaller fleets, with one program participant noting this as "relatively simple, low-hanging fruit" that could significantly improve access for smaller fleets that face barriers to participation.

Geographic equity is also a consideration. State agencies must balance the natural tendency for projects to concentrate in urban areas with policy goals around rural and disadvantaged community participation. As one state representative noted, eligibility criteria often mean "there's more projects along the ... corridor and ... metro area than, say, more rural communities."

Box 6. Recommendations

- Regularly monitor and report on progress toward any program accessibility goals
- Offer application assistance services to small businesses and disadvantaged communities
- Consider waiving or reducing match requirements for small businesses and disadvantaged communities
- Develop targeted outreach strategies that go beyond traditional channels to reach underserved communities
- Consider geographic distribution requirements to ensure rural and disadvantaged areas receive adequate attention

Utility Coordination

The critical role of utilities in successful fleet electrification emerged as both an opportunity and a coordination challenge. Interviewees were clear that early and effective utility engagement can make the difference between project success and failure, yet many fleets and program administrators struggle to navigate utility processes. This challenge is compounded by the fact that there are approximately 1,200 electricity distribution utilities in the United States, with a variety of processes, timelines, and requirements for interconnection and service upgrades. An expert noted that "many projects fail due to a lack of understanding of grid requirements," highlighting how coordination challenges can undermine even well-funded projects.

The utility landscape presents both opportunities and challenges. A charging service provider noted that "utilities such as PG&E and SDG&E have funded significant fleet electrification projects, allowing customers to combine various funding sources."

These utility programs provide substantial resources that can often be "stacked" with state and federal incentives to make projects more financially viable. However, our interviews revealed that utility engagement varies significantly across regions and individual utility companies. This variability creates uncertainty for fleets and can significantly impact project timelines and success rates.

Some approaches to utility coordination are emerging. A program participant mentioned that under one program, sites with confirmed utility agreements and readiness are “viewed more favorably" in program evaluations. This preference reflects the reality that utility coordination often represents the longest and most unpredictable element of infrastructure deployment timelines. One state program administrator noted collaboration with utilities to understand their capacity and constraints, while charging service providers emphasized the importance of developing relationships with utility account managers who understand commercial electrification needs.

One tool that can reduce planning uncertainty is an accurate and frequently updated utility hosting capacity map for loads. These maps identify locations on the distribution grid where capacity is available to support new electric loads without requiring the costliest infrastructure upgrades. This can enable fleets and charging developers with geographic flexibility to make more informed site selection decisions early in the planning process and avoid additional service applications, reducing project timelines and costs. Twenty-two percent of U.S. utility customer accounts are currently served by one of these maps. A number of states have required utilities to develop and regularly update them. A number of utilities have also developed them of their own accord, including in response to the National Electric Vehicle Infrastructure (NEVI) program [12].

Box 7. Recommendations

- Include utility coordination requirements in project readiness scoring and evaluation criteria
- Provide support to help fleets understand and navigate utility interconnection processes
- Facilitate regular communication between program administrators and utility companies to align on requirements and timelines
- Support and design around complementary utility make-ready programs
- Encourage utilities to develop standardized processes and timelines for commercial electrification projects
- Work with utilities and regulators to encourage development and regular maintenance of load hosting capacity maps

Program Sustainability

The long-term sustainability of incentive programs emerged as a concern across multiple stakeholders, with state agencies facing increasing budget pressures. Interviewees suggested that successful programs should balance immediate deployment goals with sustainable funding models that can adapt to changing political and economic conditions.

As one fleet operator noted, there is a need for business certainty and consistency in program structure, emphasizing the challenge of programs that represent "moving goalposts" as they "significantly shift back and forth" between program years. This uncertainty can deter participation and make it difficult for fleets to develop long-term program involvement and electrification strategies.

One state agency representative described efforts toward "identifying a new source that is broad based and with a nexus to the policy goal that we're trying to achieve." This approach recognizes that sustainable programs may require dedicated funding streams rather than relying solely on general fund appropriations.

Program evolution considerations also emerged as important for long-term success. Multiple stakeholders emphasized that programs designed for early market conditions may need fundamental restructuring as markets mature. Interviewees recognized the challenge involved in maintaining program effectiveness while reducing public subsidy levels and addressing changing market dynamics.

Box 8. Recommendations

- Where possible, develop dedicated, sustainable funding sources with clear connections to policy goals rather than relying solely on general fund appropriations
- Design programs with built-in flexibility to adapt incentive levels and structures as markets evolve
- Develop contingency plans for reduced funding scenarios that maintain core program effectiveness while reducing scope
- Create program sunset clauses or regular review periods that force consideration of continued necessity and appropriate funding levels
- Establish metrics and triggers for program modifications based on market conditions and technology cost trends

Conclusions

The rise of electric MHDVs has created a significant need for robust charging infrastructure. Because trucks can require higher-powered, costlier charging solutions than passenger vehicles, state-led incentive programs can be incredibly valuable to reducing upfront costs, supporting planning, and ensuring access in disadvantaged communities.

The findings from our stakeholder interviews point to several interconnected priorities for effective program design. Chief among these is the imperative for adaptability: programs must be sufficiently flexible to address the wide-ranging operational realities of commercial fleets rather than imposing uniform requirements. This flexibility should be informed by meaningful stakeholder consultation during the design phase, ensuring programs reflect real-world challenges and opportunities.

Coordination emerged as another critical theme across multiple dimensions. Programs should aim to synchronize vehicle and infrastructure funding to prevent timing mismatches that can stall deployments. Similarly, early and effective utility engagement is essential for navigating grid integration complexities. Interviewees also highlighted the importance of streamlining administrative processes, particularly to enable participation from smaller fleets that may lack dedicated grant management capacity.

The financial structure of incentives can impact the types of companies that participate in programs. The preference for milestone-based payment schedules over traditional reimbursement-only models reflects the cash flow constraints many organizations face, with smaller companies being especially vulnerable to the financial strain of fronting the costs of an entire project. Any equity and accessibility goals for programs require deliberate goal-setting, design focus, and tracking. Program design elements could include reduced or waived cost-sharing requirements, enhanced technical or application assistance, and targeted outreach to disadvantaged communities.

Looking ahead, interviewees stressed that programs need stable, dedicated funding streams, and built-in mechanisms to evolve incentive levels as markets and technologies mature.

The transition to electric MHDVs represents both a significant opportunity and an implementation challenge. Success will require incentive programs that are flexible enough to meet diverse fleet needs, accessible enough to reach a range of operators, and sustainable enough to support the market through its critical early years. By centering stakeholder input, reducing barriers to participation, and maintaining long-term commitment to this transition, state programs can play a decisive role in accelerating the deployment of clean trucks and the infrastructure needed to power them.

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