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CALSTART-NRDC-SCE joint letter on MHDV loan RFI

Additional submitted attachment is included below.

California Energy Commission
1516 9th Street
Sacramento, CA 95814

October 1, 2021

Submitted to: Docket: 20-FINANCE-01

Re: Request for Information (RFI) on Medium and Heavy-Duty Zero Emission Vehicle Charging and Refueling Infrastructure Potential Loan Program.

Dear CEC Commissioners and Staff:

CALSTART, Natural Resources Defense Council (NRDC), and Southern California Edison (SCE) thank the CEC for this request for information to build a more detailed public record on this topic.

CALSTART, NRDC, Proterra, Arrival, ABC Companies, Lion Electric, and Amply Power submitted joint comments on May 18th in response to the California Energy Commission (CEC) workshop (April 12th) on creative ideas for the Recovery and Reinvestment Program¹ The stakeholders jointly proposed that CEC invest half of the agency's \$10 million budget to provide "seed funding" for a fleet loan program within the State Treasurer [Office's California Capital Access Program \(CalCAP\)](#), a section of the California Pollution Control Finance Authority (CPCFA). The proposed mechanism for this pilot, a Zero-Emission Truck, Bus and Infrastructure Finance (ZET-BIF) program, was described in an earlier CALSTART and NRDC letter submitted May 5th.² That letter also highlighted that the existing statutory guidance for CEC's Clean Transportation Program encourages the CEC to create loan programs and allows the agency to share funds with the Treasurer's Office. Therefore, we are pleased to see the CEC release this RFI, and we request the CEC work with the Treasurer's Office or the California Economic Development Infrastructure Bank (IBank) to maximize the impact with the funds designated for Recovery and Reinvestment and implement a ZET-BIF program pilot. This letter refines and expands our original proposal as well as answers the RFI questions.

Background

Since the CEC announced its Recovery and Reinvestment Funds many notable events have occurred in the financing space. First, Southern California Edison developed its own loan program proposal to be implemented by CalCAP to target electric Medium and Heavy-Duty Vehicles and

¹ Proterra-Lion-AmPLY-Arrival-ABC-NRDC-CALSTART comments on Recovery and Reinvestment, May 18, 2021. <https://efiling.energy.ca.gov/GetDocument.aspx?tn=237832&DocumentContentId=71074>

² NRDC and CALSTART joint comments on Recovery and Reinvestment Initiative, May 5th, 2021. Available at <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-TRAN-02>

Infrastructure.³ Both CALSTART and NRDC have supported the development of such a program to help fleets finance the purchase of electric medium- and heavy-duty vehicle and infrastructure purchases by leveraging their Low Carbon Fuel Standard future credit value.

The second notable recent development in this space is the passage of SB 372 (Leyva) by the legislature, which is now awaiting signature by Governor Newsom. SB 372 emphasizes the importance of the state developing loan programs for zero-emission Medium and Heavy-Duty Vehicles (MHD-ZEVs). We discuss each of these items in more detail below.

Therefore, CEC now has an enormous opportunity to begin addressing the state need to accelerate the deployment of MHD-ZEVs and infrastructure, implementing the recommendations in SB 372, and to complement the program proposed by SCE through developing a *statewide* ZET-BIF pilot program.

Do financing programs exist to meet the needs of MHD-ZEVs?

Financing programs do not exist today that meet the financing needs of MHD-ZEVs. There is an immense need for financing in this space. In addition, there is a need to augment existing state grant programs – which are often over-subscribed – with financing programs in order to achieve the scale needed to support the state’s zero-emission vehicle and infrastructure deployment goals.

CALSTART published a white paper in March 2021 which highlighted the importance of public financing assistance, concluding:

“The range of risks faced in financing commercial electric fleets are too broad and deep for lenders to accept, without cost-prohibitive guarantees, and/or credit or balance sheet support, which is not readily available to most potential electrification adopters. To address the most-frequently cited barrier, residual value risk, we have proposed herein development of a first loss protection instrument, to be offered by some federal or state instrumentality, who we designate as first loss protection provider, or “FLPP.” . . . for all of the foregoing advances, penetration of commercial electrification into the LMI demographic and SME category is almost non-existent. Acquisition costs are too high, incentive programs have unachievable conditions, and low-cost financing . . . **simply is not available**. This paper has identified emerging solutions that are addressing this market failure, which include commercial, financial and technology advancements. These are supported by policies at various levels of government that work in the same direction.”⁴

Response to RFI questions:

³ https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/pending/electric/ELECTRIC_4518-E.pdf
See pages 46 to 51.

⁴ <https://calstart.org/wp-content/uploads/2021/03/Taking-Commercial-Fleet-Electrification-to-Scale-White-Paper.pdf> at 55.

1. What vehicle segments, vocations, and/or locations of the medium- and heavy-duty clean transportation infrastructure system are most amenable to a loan program at this time? Additionally, what portions of infrastructure are most amendable (e.g., in front of the meter, behind the meter, EVSE, transformers, etc.)? What evidence exists to substantiate these claims?

Both the SCE proposal and SB 372 highlight that whether or not a fleet is a good “match” for a loan program is less about the type of vehicle and more about the ownership of the fleet. We find that all MHDV types, segments and vocations are good candidates for a loan program, but that small and public fleets likely have the greatest need for public financing assistance.

Also, as stated in SB 372: “small and microfleets of medium- and heavy-duty vehicles will require development of specific financing solutions relative to larger fleets of medium- and heavy-duty vehicles, and the state’s commitment to developing those financing solutions.”

In the earlier days of [California’s Hybrid and Zero-Emission Truck and Bus Voucher Incentive Program \(HVIP\)](#) program, the State saw orders predominately placed in a few more concentrated vehicle segments: particularly transit buses and medium duty vans and trucks. Now, we see much more diversity in the vehicles being purchased through HVIP.

We recommend that the loans and other financing tools target public and non-profit fleets together with small and medium-size private fleets initially. Within these fleets, the types of items that can be prioritized include the costs of high-capacity (kW) charging and the incremental cost of drayage trucks, buses and delivery vehicles. The higher ZEV initial purchase price together with the cost of charging equipment, mean fleets face a real and large barrier to adopting ZEVs. ZEV initial purchase prices can be 1.5 to 3 times that of a conventional diesel truck or bus, and it is often difficult for smaller fleets to participate directly in the LCFS market due to the low volume of their credit generation and the complexity of LCFS reporting. Additionally, while fleets can earn LCFS credits, these are only awarded over the life of the vehicle based on the use of low-carbon electricity. Many of these fleets lack a means to monetize the future stream of LCFS value and utilize it as up-front capital. CALSTART’s internal surveys of members found that transit agencies are banking rather than selling their LCFS credits.

Background--Proposed ZET-BIF Program Design and Recommendations

Since the submittal of the May 18th joint stakeholder letter to the CEC (NRDC, CALSTART, Amply, Proterra, Arrival, ABC Companies and Lion Electric), the signers of this letter have refined the ZET-BIF proposal. (See appendix A for additional details). The updated recommendations include:

Recommendations

1. **Timing:** CEC funding of the ZET BIF statewide pilot should be implemented by the Office of the Treasurer or the California Economic Development Infrastructure Bank (ibank), and this

should be expedited. With approximately 2 million medium and heavy-duty vehicles in California, funding the incremental cost of replacement ZEVs and ZEV infrastructure with grants will quickly exceed the available budget. California will need to develop loans and other financing tools to complement the grant approach. To prepare for the MHD-ZEV scale-up and the transition to financing mechanisms, we need lessons learned from a pilot of this ZET BIF proposal. After pilots, we believe more sophisticated programs for loans and other non-grant financing tools can be developed that are available statewide with fewer restrictions on which fleets can qualify

2. **Scope of Program:** The greatest need in a pilot is for loans for both MHDV-ZEVs and associated fueling infrastructure as well as grants for technical assistance programs.⁵ The CEC should combine their funds with other parties (state agencies and utilities) to develop a holistic approach on loans, rather than just concentrating on ZEV infrastructure. The phrase in question 1 (transportation infrastructure system) should be interpreted in the broadest possible way to include the incremental cost of the vehicle. In addition, the CEC should take full advantage of existing statute which does not limit the CEC to just financing infrastructure.⁶
3. **Budget:** The CEC should provide funding for a ZET-BIF pilot of \$20 M out of the \$747M recently provided by the Legislature to the CEC. This would be combined with LCFS holdback funds from the investor and publicly owned utilities⁷ and other agencies (e.g., CARB or federal funds) to create a ZET-BIF program of \$50M or more and cover fleets of drayage trucks, transit buses, school buses, delivery trucks and other service trucks at their home base locations. We estimate that under a ZET BIF pilot, demand for the program would likely be for loans for approximately 2400 medium and heavy-duty ZEV⁸ trucks /buses and accompanying infrastructure.⁹ The amount of private financing attracted would be over \$250 million, based on the \$50 million in overall public and utility support. However, because the public and utility funds are *recycled* in a loan-loss reserve program, eventually many more ZEV trucks and buses (and accompanying ZEV infrastructure) will be funded.

⁵ Examples of technical assistance programs include ENERGIZE by CALSTART, [SCE's Charge Ready Transport program](#), and [PG&E's EV Fleet program](#)

⁶ CA Health and Safety Code sec. 44272 provides: "The program shall provide, upon appropriation by the Legislature, competitive grants, **revolving loans, loan guarantees, loans, or other appropriate funding measures** to public agencies, California federally recognized tribes, tribal organizations, vehicle and technology entities, businesses and projects, public-private partnerships, workforce training partnerships and collaboratives, **fleet owners . . .**" Section (g) provides: "The commission may do all of the following: (1) Contract with the **Treasurer to expend funds through programs implemented by the Treasurer**, if the expenditure is consistent with all of the requirements of this article and Article 1 (commencing with Section 44270)." The CEC is not precluded by statute in providing funding for vehicle loan programs.

⁷ Holdback funds come from utilities' residential LCFS credits, and funding with the proceeds of these LCFS credits is allowed for drayage truck and bus electrification per CCR section 95483 c).

⁸ Includes battery electric and fuel cell electric

⁹ Assumed a 20% loan loss reserve to be conservative.

Because of the nature of the leveraging of LCFS funds from the fleets, we note that the program would likely need to be focused on financing for:

- a. Private or depot-based charging, as opposed to away-from-home base charging (except in-route transit bus charging stations)
- b. The cost of the charging station and the make-ready, but not including in-front of the meter infrastructure (utility-side infrastructure)
- c. ZEV MHDV trucks and buses and infrastructure, subject to the restrictions of each funding source. While the funds from the various sources should be comingled as much as possible, we also recognize that SB 350 restrictions on investor-owned utilities prevent them from funding hydrogen infrastructure in this proposed pilot.

Should the pilot be successful, it is recommended that the CEC, or other state agency, direct more funding to similar financial mechanisms to facilitate the at-scale transition of the million-plus MHDVs in California to zero-emission technologies.

4. **Mechanics:** The new ZET-BIF pilot would provide coverage (through a loan-loss guarantee) of loans made by private lending institutions to fleets, based on the fleets' expected LCFS proceeds from ZE charging / fueling. The Office of the Treasurer or IBank would help identify interested and eligible participating private lending institutions and establish guidelines for the program in coordination with the agencies and utilities providing funding. The loan amounts would be based in part on a private bank's estimated value of LCFS credits earned over the vehicle "lifetime" and reasonable interest rates set by the lender and program. Lenders would base the size of the loan on an independent evaluation of the value of the LCFS credit stream, and no changes to the LCFS regulation are required.¹⁰ A ZET-BIF pilot would complement existing state grant programs by leveraging private dollars together with LCFS proceeds by using comparatively lower amounts of public funds. Small- and medium-sized fleet owners would consign their future LCFS credits to either the lending institution or a third-party, and their loan would be gradually repaid as LCFS credits are generated and sold, minus a reasonable interest rate.
5. **Guidelines:**
 - a. Battery Electric Fleets participating in the ZET BIF pilot should take service on a time-of-use (time-of-day) rate and commit to work with their local utility on a load management plan.
 - b. Fortune 1000 fleets would not be eligible for the pilot phase targeting small and medium size private fleets and public and non-profit fleet owners.
 - c. Additional details should be worked out with the Office of the Treasurer or IBank.¹¹
6. See answer to question #3 for additional recommendations.

¹⁰ We recommend a calculation that relies upon an 8-year useful life of the vehicle (rather than 10 or 12 years) and that relies upon 75% of expected LCFS revenues over this time

¹¹ For example, CalCAP's lenders typically have loans in the 5-10% range and no more than 20%. Many loans are to one truck fleets. The loan loss reserve amount can be as low as 10% but might be higher in the early years.

Evidence supporting the above recommendations: we cite the following materials to support the above targeting of a ZET-BIF pilot and the above recommendations.

Exhibit A: Findings as passed by the Legislature Sept 9, 2021 in SB 372(Leyva):¹²

SECTION 1: Legislature finds and declares all of the following: (see question 5 for air quality SB 372 findings)

- (a) The transition to zero-emission medium- and heavy-duty vehicles is the goal of the state, as outlined in the Governor’s Executive Order No. N-79-20 and the State Air Resources Board’s Advanced Clean Trucks and Advanced Clean Fleets regulations.
- (f) Using zero-emission vehicles instead of internal combustion engine vehicles saves the operators of medium- and heavy-duty vehicle fleets money over the lifetime of the zero-emission vehicles because zero-emission vehicles have lower operation costs. Additionally, using zero-emission medium- and heavy-duty vehicles has broader societal benefits, including improved health outcomes, resulting in reduced costs related to health care.
- (g) Even with this lower operating cost, getting to this transition requires near-term, scalable, and replicable financing tools and nonfinancial supports, such as technical and policy supports, with an understanding that small and microfleets of medium- and heavy-duty vehicles will require development of specific financing solutions relative to larger fleets of medium- and heavy-duty vehicles, and the state’s commitment to developing those financing solutions.
- (h) Small and microfleets are more likely to operate in disadvantaged and underserved communities and communities of color, have less access to market capital, and face other financial burdens, and, for those reasons, could benefit from the cost savings of zero-emission vehicles if financing tools and nonfinancial supports are designed for, and directed to, those fleets. Furthermore, these tools must be in place to support small and microfleets given the development of the Advanced Clean Fleets regulation by the State Air Resources Board.
- (i) Large fleets will likely need public moneys and nonfinancial supports to help transition those fleets to zero-emission vehicles. These tools can be leveraged with infusions of private capital.
- (j) Public moneys, other financing tools, and nonfinancial policy supports can be designed to go where they are needed the most and will have the most impact, bringing in as much private capital as possible to complement and leverage limited existing funding, while ensuring that small and microfleets are made economically better off through this process, rather than adding to their financial burden of purchasing a new or used vehicle.
- (k) It is important to ensure the distribution of funds to seaports throughout the state to widen adoption of these vehicles with specific offerings to overcome existing obstacles to accessing funding and that will complement their different operational models in order to

¹²Passed the California legislature on 9/9/21

https://leginfo.ca.gov/faces/billTextClient.xhtml?bill_id=202120220SB372

accomplish the goals of Article 4 (commencing with Section 44274.10) of Chapter 8.9 of Part 5 of Division 26 of the Health and Safety Code.

(l) Bus fleets are often on the cutting edge of zero-emission vehicle transportation, help to support the transition to zero-emission vehicles, and would benefit from financial and nonfinancial support designed to suit their fleets.

Exhibit B: SB 372 passed the Legislature and is before the Governor. SB 372 would establish the Medium- and Heavy-Duty Zero-Emission Vehicle Fleet Purchasing Assistance Program within the Air Quality Improvement Program to make financing tools¹³ and non-financial supports available to operators of medium- and heavy-duty vehicle fleets to enable those operators to transition their fleets to zero-emission vehicles. The bill would require CARB to designate the California Pollution Control Financing Authority within the State Treasurer as the agency responsible for administering the program and would require CARB and the authority to enter into an interagency working agreement for the development and administration of the program.

The bill would require the state board and the authority, in developing and implementing the program, to consult with various stakeholders regarding specified program components, develop and design, in consultation with other relevant state agencies, as provided, financing tools and nonfinancial supports that are most appropriate for different sizes and sectors of medium- and heavy-duty vehicle fleets, and ensure that the financial tools and nonfinancial supports required pursuant to the program are available to operators of medium- and heavy-duty fleets by January 1, 2023, as provided. The bill would require the authority to develop, in consultation with the state board, a data collection and dissemination strategy for the program, as provided, and to track project implementation and report to the state board project outcomes no less than annually. The bill would require the state board to provide on its internet website information regarding the potential financing and grant options and other technical assistance available through the program.

Exhibit C: SCE's proposed program details: SCE submitted a proposal in June of 2021 to the CPUC Energy Division in its Tier 2 Advice Letter 4518-E¹⁴ for a loan program for electric

¹³ The Legislature in passing SB 372 defined "Financing tools" broadly, and it " includes, but is not limited to, any of the following: (1) Capital instruments, which are financing instruments that increase access to capital or other resources or reduce the cost of capital, or both, such as interest rate reductions, public-backed "soft" loans, grants, bonds, and investment aggregation, also known as warehousing. (2) Risk reduction instruments, which are financing instruments that reduce exposure to risk or uncertainty, such as performance guarantees and asset residual value guarantees. (3) Cost smoothing instruments, which are financing instruments that reduce and smooth up-front or recurrent costs, or both, such as operational leasing, all-inclusive leasing, also known as wet leasing, lease-purchase agreements, and on-bill financing."

¹⁴ https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/pending/electric/ELECTRIC_4518-E.pdf See pages 46 to 51.

medium and heavy-duty vehicles and their infrastructure. The proposed program would be administered by CPCFA and function as a traditional CPCFA loan program but with an additional innovative financing mechanism. The innovative financing mechanism would allow owners the opportunity, should they desire, to consign their LCFS credits to lending institutions (or other LCFS service providers), which would then act as LCFS aggregators with a better ability to participate in the LCFS market due to scale. LCFS consignment could also serve as a way to both pay down their loan or to secure larger loans for electrification by using their LCFS potential as collateral. To avoid any conflict of interest, neither SCE nor any state entity would be involved in estimating future LCFS credit potential or prices; the value of the LCFS credits would be estimated by the financial institutions or independent parties, and lenders will be able to choose to sell the credits in the LCFS market themselves or to work with third party service providers that may have greater expertise in the market.

While CALSTART and NRDC provided comments and feedback to SCE on their proposal, SCE faces some restrictions on the scope. For example, Public Utilities Code 237.5 does not include hydrogen infrastructure as eligible in proposals enabled by SB 350. Also, D-20-12-027 puts limits on the expenditures of the proceeds from the sale of the investor-owned utilities' LCFS holdback credits (e.g., equity provisions).

In the SCE proposal, unlocking a small- or medium-sized business' LCFS potential will enable loans to be larger, to match the type of equipment being purchased, or will allow loans to be provided with lower interest rates. This structure is the same as the existing Truck Loan Assistance Program at CPCFA except that the LCFS credit proceed component is being piloted for the first time. Third-party lenders will hold and manage the loans using their standard underwriting policies and practices. This will include setting loan terms and conditions with the applicant as amended by SCE requirements for participation in the program (e.g., interest rate, type of equipment, customer eligibility, etc.). As practiced in other loan programs implemented by CalCAP, SCE proposed the CPCFA staff at the Office of the Treasury would work directly with lenders and would be responsible for overseeing their actions and following the eligibility requirements proposed by SCE to the CPUC, including:

- A. Lendees must not be on the Fortune 1000 List (consistent with SCE's CRT Program)
- B. The vehicle electrification must benefit underserved communities by one of two of the following criteria:
 - C. The business must be in a DAC or a rural community, or;
 - D. The business must demonstrate that the vehicle will primarily operate in a DAC or rural community.
- E. The customer's primary business and at least 51 percent of its employees or business income, sales or payroll must be in California
- F. The business activity resulting from the loan must be created and retained in California

- G. The loan is applicable to ZEVs, and ZEV infrastructure. It is applicable to facility or electrical infrastructure installation and upgrade costs, if the local utility does not cover these costs with grants or other financial incentives (e.g., microgrids on campuses or in territories of some publicly owned utilities).

Additional justification

- The idea of loans to accelerate deployments of infrastructure for ZEV medium and heavy duty vehicles is being contemplated by Congress to modify the USDOE in their Advanced Technology Vehicles Manufacturing (ATVM) loan program.¹⁵
- The “Build Back Better Act”, currently before Congress, is also considering establishing a Green Bank to provide loans for ZEVs, among other technologies.¹⁶ Such federal loans could integrate well with a ZET-BIF pilot and allow for potential future federal funds to be leveraged.
- Both of these funds could expand our recommended \$50M ZET BIF pilot into a larger program.

2. What examples of successful loan programs can you cite, ideally in transportation infrastructure in other geographies, or as a second-best example, in other sectors? What are the key features of these programs that CEC should look to replicate?

In short, there are very few transportation infrastructure loan programs to point to, as either existing or successful. In March 2021, CALSTART published a white paper entitled: “TAKING COMMERCIAL FLEET ELECTRIFICATION TO SCALE: FINANCING BARRIERS AND SOLUTIONS”¹⁷ which surveyed all ZEV financing programs across the country “to assess the current state of the financing markets, across all types of capital providers, in terms of their interest and engagement with, and actual investment in, commercial fleet electrification” and concluded that such program are essentially non-existent, yet extremely critical to MHD-ZEV adoption.

We recommend three existing programs run by the State Treasurer as the only examples we can find of successful *related* loan programs, where the design could be transferred, in part, to ZET BIF. CPCFA currently implements CARB’s existing *On-Road Heavy-Duty Vehicle Air Quality Loan Program* for small fleets of clean diesel trucks (in the CalCAP program). CPCFA also implements the CEC’s *Electric Vehicle Charging Stations Financing Program* for small businesses.¹⁸ Both of these existing programs provide small business borrowers with capital access for either cleaner trucks or EV chargers while providing coverage to lenders on certain loan defaults to reduce their risk by providing a loan-loss reserve, so that banks are willing to make loans to borrowers at reasonable

¹⁵ <https://www.atlasevhub.com/materials/the-reconciliation-bill-more-than-34-billion-dedicated-for-evs/>

¹⁶ <https://budget.house.gov/publications/report/inflection-point-america-budget-reconciliation-moves-build-back-better-act>

¹⁷ <https://calstart.org/wp-content/uploads/2021/03/Taking-Commercial-Fleet-Electrification-to-Scale-White-Paper.pdf>

¹⁸ CEC already funds CalCAP for light, medium and heavy-duty EV charger loan program (but not with the LCFS component).

interest rates who might otherwise not be deemed credit-worthy. The California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA), also in the Office of the State Treasurer, manages the California Hub for Energy Efficiency Financing (CHEEF) through which the state's investor-owned utilities provide joint funding to support loan-loss reserve financing for energy efficiency upgrades through the Residential Energy Efficiency Loan Assistance Program (REEL). REEL has been successful at integrating contributions from multiple parties under a common implementer and using the contributions from those entities to provide financing support for customers in each entity's respective service territory. [ARD1] While the REEL Program does not provide an example of financing for heavy-duty vehicle electrification, it does provide learnings on how a state agency can support a statewide program funded by multiple regional participants.¹⁹

Our proposal (see answer to question 1 and appendix A) is based on the CPCFA existing programs which use publicly backed private loans in a loan loss reserve program, but we are modernizing this idea with the using LCFS proceeds as part of the bank's decision-making process.

3. How should a loan program be structured to deliver maximum effectiveness? What design features matter most to induce private capital participation? How can a loan program work optimally with public programs like the LCFS, the Renewable Fuel Standard and others of relevance? In particular, how can a loan program be structured to work alongside grant programs run by the state and other entities?

In our answer to question 1 we provided details on the structure of this program.

We find that the most important design feature is the loan-loss reserve, whereby the state guarantees the loan made by a private lender. This allows the public dollars to be stretched 5 times further, by leveraging significant private capital, through reducing risk from the lenders. In addition, modernizing the loan loss reserve with an LCFS proceed component is also very important. SCE's program proposal highlights exactly how such a loan program can be designed to optimally leverage the future value stream for MHD-ZEVs from their LCFS credits.

Under the ZET-BIF design, the private bank's loan could take into consideration, in part or in full, the value of LCFS credits earned over the vehicle "lifetime" as potential assets that the lendee can use to pay down their loan. This may allow lenders to provide different options when setting loan interest rates. The loans could be repaid in part or in full by a fleet owner using their actual earned LCFS revenues over time from EV charging or H2 fueling or consigning their earned credits to the bank or a third-party for monetization. CalCAP would provide some level of loan "guarantee" to these private lenders to reduce their risk and provide an incentive to lend.. Funds could be recycled and work as a revolving loan program.

¹⁹ For more information contact Mr. Derek Chernow, interim Executive Director of CPCFA in the Treasurer's office and Executive Director of the CAEATFA.

In addition, our proposed pilot loan program would not require either a regulatory or legislative change to the existing LCFS program that is implemented by CARB. This would be a separate, but complementary program implemented by CalCAP part of CPCFA or by the IBank. CalCAP would establish general guidelines and protections for all participating parties in operationalizing the program (e.g., interest rate caps, etc.). Specific conditions would likely need to be developed depending on the type of fleet as well (e.g., government fleet, small business fleet, large corporate fleet). Lending institutions and not state government would need to estimate the value of LCFS as well as electricity and maintenance savings. As a pilot, some of the process may be naturally iterative as the CalCAP also helps private lenders conduct their due diligence and assess risks. Today's existing CalCAP program caps interest rates at 20% and sees interest rates as low as 5%. CalCAP typically directs 10-14% of the funds to the loan loss reserve for its existing diesel truck program.

Regarding how a loan program can be designed to work alongside existing grant programs, we are confident that this loan program would be highly complementary to HVIP incentives for vehicles and ENERGIZE incentives for MHD-ZEV infrastructure. Neither HVIP nor ENERGIZE covers the full costs of either vehicles or infrastructure. Therefore, this loan program would make vehicle/ infrastructure purchases possible by providing the "gap funding" to the fleet. In addition, the need for vouchers or grants is more than can be met with public funding and this becomes a greater problem every year. A ZETBIF loan loss reserve program fills that gap and also can operate after a voucher or grant program runs out of funds.

Other recommendations

- We believe California needs a one-stop shop for small private fleets as well as public and non-profit fleets where all of the tools (e.g., grants, vouchers, loans, and advice) can be provided especially for small fleets owned or operated by low-income individuals.²⁰
- We recommend that a ZETBIF program be expanded from the SCE proposal on business fleets to include eligibility for non-profit and agency fleets.
- We recommend that CEC help stakeholders such the undersigned convince utilities to use some of their LCFS "holdback" funds and join with SCE in proposing to fund CalCAP or Ibank for pilot loan loss reserve program for ZEVs and ZEV infrastructure, and for areas where there is not yet utility funding, we recommend that CEC partner with CARB or other sources of funds to provide loans and other financial tools for both ZEVs and ZEV infrastructure.

4. In which instances and under what program designs would you prefer a loan over a grant? Would reduced reporting requirements or a streamlined application process cause you to prefer a loan over a grant?

²⁰ Based on internal conversations with CALSTART's many members who operate fleets and workshops held by CARB on issues for medium- and heavy-duty fleets

As discussed above, we believe a comprehensive package should be offered and not a stand-alone program just for infrastructure. Generally, this should not be an either/ or proposal. If we want to *rapidly* scale MHD-ZEV adoption, which is needed to avoid negative health impacts from diesel emissions and global climate catastrophe, we need a multi-pronged approach.

This will require partnering with utilities (LCFS holdback funds), and likely with CARB and maybe other sources of funds and working with CPCFA or similar state agency to be the lead implementer. Loans may be preferential to long-term viability of the transition to ZEVs in these sectors. There will simply not be sufficient public funding consistently available to sustain all of the needed sectoral investments; bringing the power of private capital markets to support electrification provides surety that there will be consistent funding in the marketplace to support all participants. There are currently few, if any, finance mechanisms to support those that will benefit the most from switching to electrified transport and developing those business models will open up channels of capital previously inaccessible to the market.

Whether a loan is preferable or not to a grant fundamentally depends on what entity is answering the question. Clearly most fleets and equipment purchasers would prefer grants or vouchers, which act as free-money towards the acquisition of their assets, but it is not pragmatic for the state or other public entities to financially support the entire market in this manner. Loans, and particularly loan-loss reserve mechanisms, provide ways to leverage public funding to attract larger amounts of private capital so that the incentive mechanism is more sustainable.

Even if grants and/or vouchers could be made available for every vehicle purchase, this would almost by necessity mean that the amount of the grant funding would not be able to cover the entire purchase cost. Additionally, there may be fleets or operators that are unable to qualify for grant or voucher opportunities, or simply choose not to. In either case, having loan programs available to support the market bolsters the effort and should be thought of as a “both/and” solution with grants rather than an “either/or.”

5. How can a loan program reach priority populations, including both by directly providing capital to these populations, and by ensuring that resulting infrastructure projects deliver meaningful benefits?

Converting MHDV fleets to zero-emissions will have major impacts on Disadvantaged and Low-Income Communities in the state, in part because these communities suffer disproportionately from diesel particulate pollution as well as noise and other deleterious effects of truck traffic, which can be ameliorated through a transition to ZEVs, but also because the small owner-operators of drayage trucks and other MHDVs often live in these communities. Loans focused on small businesses will directly help drivers who live in DACs., and fleets are typically located in

disadvantaged communities. Also, the CEC could put requirements a certain amount of funds for rural and tribal communities, and, like SCE's proposal, Fortune 1000 fleets could be excluded from the pilot.

Below we list a few relevant findings passed by the Legislature in 2021 from SB 372:

(b) Statewide, about 12,000,000 Californians live in communities that exceed the federal ozone and PM 2.5 standards. According to the American Lung Association, more than 90 percent of Californians live in counties affected with unhealthy air during certain parts of the year. The south coast and San Joaquin Valley are the only two areas in the nation designated as "extreme" nonattainment. Researchers found that southern California has seen a 10 percent increase in deaths attributable to ozone pollution from 2010 to 2017, inclusive.

(c) Emissions from medium- and heavy-duty vehicles make up a significant proportion of harmful air pollution in California, despite making up just 7 percent of vehicles on the road. Heavy-duty trucks are responsible for about 35 percent of total statewide NOx emissions and over 70 percent of NOx emissions from on-road mobile sources. Heavy-duty trucks are also responsible for approximately 26 percent of total statewide diesel PM emissions.

(d) The risks of near-road air pollution are particularly high for disadvantaged and underserved communities and communities of color because these communities constitute a higher percentage of the population near major roadways. (d) The risks of near-road air pollution are particularly high for disadvantaged and underserved communities and communities of color because these communities constitute a higher percentage of the population near major roadways.

(e) These emissions near roadways add to the health burdens in disadvantaged and underserved communities and communities of color and cleaning up transportation emissions in these communities is long overdue and should be the focus of state clean air programs.

(g) Even with this lower operating cost, getting to this transition requires near-term, scalable, and replicable financing tools and nonfinancial supports, such as technical and policy supports, with an understanding that small and microfleets of medium- and heavy-duty vehicles will require development of specific financing solutions relative to larger fleets of medium- and heavy-duty vehicles, and the state's commitment to developing those financing solutions.

(h) Small and microfleets are more likely to operate in disadvantaged and underserved communities and communities of color, have less access to market capital, and face other financial burdens, and, for those reasons, could benefit from the cost savings of zero-emission vehicles if financing tools and nonfinancial supports are designed for, and directed to, those fleets. Furthermore, these tools must be in place to support small and microfleets given the development of the Advanced Clean Fleets regulation by the State Air Resources Board. (j) Public moneys, other financing tools, and nonfinancial policy supports can be

designed to go where they are needed the most and will have the most impact, bringing in as much private capital as possible to complement and leverage limited existing funding, while ensuring that small and microfleets are made economically better off through this process, rather than adding to their financial burden of purchasing a new or used vehicle.

(k) It is important to ensure the distribution of funds to seaports throughout the state to widen adoption of these vehicles with specific offerings to overcome existing obstacles to accessing funding and that will complement their different operational models in order to accomplish the goals of Article 4 (commencing with Section 44274.10) of Chapter 8.9 of Part 5 of Division 26 of the Health and Safety Code.

6. What Evaluation, Management and Validation (EM&V) framework should be used to evaluate the success of a loan program? Can you identify examples of EM&V frameworks that have been employed in other public loan programs?

Possible metrics include

- Number of financial institutions enrolled to make loans
- Average size of loan
- How many loans cover vehicle incremental cost only, ZEV infrastructure only, and both
- Range of interest rates offered, with median and average rate listed
- Number of defaults on the loan
- Average value of LCFS credits (\$ per ton) estimated by financial institutions, and number of years of LCFS credit value assumed
- Types of fleets:
 - Small public
 - Medium size public
 - Large size public
 - Non-profit
 - One-truck private fleet (microfleet)
 - Two truck private fleet (microfleet)
 - Other small private fleets
 - Medium size fleet
- Number and of transit bus fleets and individual buses (by type)
- Number of school bus fleets and individual buses (by type)
- Number of other bus fleets and individual buses (by type)
- Number of drayage truck fleets and individual trucks (by type)
- Number of delivery truck fleets and individual trucks (by type)
- Number of service truck fleets and individual trucks (by type)
- Number of fleets located in rural areas, tribal areas and in Disadvantaged communities (different percentiles breakdown)
- Number of fleets located in small and medium size publicly funded utility districts

- Location of fleet by city and address
- Funding provided by different funding sources
- Breakdown the above by battery EVs, fuel cell EVs, battery EV infrastructure and hydrogen infrastructure.

7. Are there any other thoughts or recommendations that you would like us to consider?

Yes.

- 1) CALSTART paper on financing ZEVs and ZEV infrastructure.²¹
- 2) EDF paper on financing ZEVs.²²
- 3) See Appendix A for the NRDC – CALSTART proposal on loans for medium and heavy-duty ZEVs and accompanying infrastructure and Appendix B for the accompanying FAQ and appendixes.
- 4) See pages 46 – 51 for the relevant part of the SCE proposal to the CPUC from June 2021 for a Zero Emission Truck, Bus and Infrastructure Financing pilot for the SCE service territory (to be run by CPCFA) .²³
- 5) NRDC-CALSTART letter in May 2021 to the CEC on a Zero Emission Truck, Bus and Infrastructure Finance pilot²⁴

Thank you for the opportunity to comment. Please contact Meredith Alexander at malexander@calstart.org with any questions.

Sincerely,

/s/

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/s/

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/s/

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²¹ <https://calstart.org/taking-commercial-fleet-electrification-to-scale-financing-barriers-and-solutions/>

²² https://business.edf.org/files/EDF023_Zero-Emissions_v3.pdf

²³ https://library.sce.com/content/dam/sce-doelib/public/regulatory/filings/pending/electric/ELECTRIC_4518-E.pdf

²⁴ <https://efiling.energy.ca.gov/Lists/DocketLog.aspx?docketnumber=21-TRAN-02>

APPENDIX

FREQUENTLY ASKED QUESTIONS (FAQs) ON THE ZETBIF PROPOSAL:

1. Would this proposal require a regulatory or legislative change to the LCFS program?

No, this pilot would not require either a regulatory or legislative change to the existing LCFS program that is implemented by the Air Resources Board. This would be a separate, but complementary program implemented by CalCAP section of the Office of the Treasurer or the California Economic Development Infrastructure Bank (IBank) that would help fleets bring forward their credit streams.

2. What will be the terms for private lending institutions to participate?

CalCAP (or IBank) would establish general guidelines and protections for all participating parties in operationalizing the program (e.g., interest rate caps, etc.). Specific conditions would likely need to be developed depending on the type of fleet as well (e.g., government fleet, small business fleet, large corporate fleet). Lending institutions and not state government would need to estimate the value of LCFS as well as electricity and maintenance savings. As a pilot, some of the process may be naturally iterative as the CalCAP also helps private lenders conduct their due diligence and assess risks. Today's existing CalCAP program caps interest rates at 20% and sees interest rates as low as 5%. CalCAP typically directs 10-14% of the funds to the loan loss reserve.

3. Does this loan program represent additional funding for fleets above and beyond existing programs?

To the extent that the loan program facilitates new private capital leading and enables fleets to purchase more ZEVs than they otherwise would have, this pilot can be considered as bringing in additional investments from the private sector. There is also a positive side-effect, as the pilot enables more fleets to purchase ZEVs, it also enables them to access LCFS emission credits and to help meet the state's climate and air quality reduction goals. However, we note the primary mechanism by which the program operates is to help move future LCFS credit value to help cover the upfront purchase. Whether that is increasing the total public and private investment "pie" depends on one's view of what would have occurred without the pilot. At present, we have also learned that many public fleets fail to capture any of their LCFS credit value, finding the process of selling credits too complicated or confusing.

4. If LCFS prices fall, who bears the risk?

The program would facilitate fleets consigning their future LCFS credit streams to private lenders for capital. While private lenders ultimately bare the risk of prices falling, CalCAP's program would mitigate much of the risk through establishment of a reserve with the initial funds (e.g., 20% loan/loss). In addition, lenders could in their loan amounts estimate the LCFS credit prices conservatively at 66% of market clearing prices over the past three years, as an example. We would

also expect lenders to use a conservative estimate for a vehicle's useful life, e.g., basing the credits earned by a transit bus on a 10-year life vs. the actual expected 12-15-year useful life.

5. Will this affect the LCFS credit prices or result in unintended consequences for other market participants?

No. Since fleets will still be generating credits over time and either consigning them for sale or directly selling them in the future, this does not result in a large stream of credits entering into the market all at once which could depress prices. To the extent that this mechanism allows fleets to purchase additional ZEVs more readily, it may have the positive side-effect of helping facilitate compliance with the overall LCFS program which requires the carbon-intensity of transportation fuels to decline to 20% by 2030.

6. How does this interact with other recipients of LCFS credit value (e.g., utilities, infrastructure providers?)

Under the LCFS program, private commercial fleets and transit operators directly receive LCFS credits based on their low-carbon electricity usage of the vehicles they purchase and the fuel supply equipment they operate. Utilities receive base LCFS credits on behalf on their residential EV customers with separate requirements guiding their use on behalf of those customers. For public charging, those owning the fuel supply equipment (e.g., charging infrastructure providers or site hosts) receive the LCFS credits. This proposal does not affect the current structure of the LCFS regulation. However, utilities can spend some of their LCFS credits (from residential charging) on electrification of drayage trucks and buses, and these LCFS credit proceeds are a possible funding source for loans under CalCAP or Ibank.

7. Will other projects be allowed under this program?

Currently this pilot program's scope is focused on developing specific financing tools (or products) to address challenges by fleet owners. Of course, lessons may be drawn from this pilot that can feed into other concepts for green bank financing or programs, including other types of projects.

DETAILED INFORMATION ON PROPOSAL AND DESIGN OPTIONS

PROCESS: CALSTART, Proterra, Silicon Valley Leadership Group, and Natural Resources Defense Council worked in 2020 to develop this concept. The 2021 version of the concept was developed by NRDC and CALSTART based on detailed conversations with CalCAP, iBank, CEC, CARB and one utility, and was further refined based on working with Southern California Edison in their ZET-BIF proposal to the CPUC and based on the CEC's August 2021 request for information.

BARRIERS TO ZEV ADOPTION THIS PROPOSAL SOLVES:

ZEV adoption faces the same challenge as energy efficiency: even with a decent payback on investment vs. a diesel vehicle, many public and private fleets cannot make the switch because their capital budgets may not allow them to cover the incremental cost difference between a

conventional vehicle and a ZEV. Between 2019 and 2021 over 2000 HVIP vouchers were requested²⁵—but this likely represents only ½ of the demand for commercial ZEVs. In addition, there are transactional barriers for private banks to provide loans to fleets for relatively new technology, and we understand commercial ZEVs may be viewed as risky due to unknown residual value.

DETAILS OF DESIGN : *CalCAP Provides Backing to Private lenders, who loan funds to fleets based on their expected LCFS credits or who finance overall vehicle purchases.*

Overview: We are exploring two variations on a program design that involve the CalCAP backing loans made by private lending institutions to fleets, based on the fleets' expected LCFS revenues from charging or fueling from ZEV infrastructure. These designs are based on our preliminary research that there are certain banks that may be willing to expand the types of loans they might typically make to larger fleets with established credit histories.

Under our original envisioned design, private lending institutions would make loans based on their estimation of the value of LCFS credits earned over the “lifetime” of the vehicle and may include a higher interest rate (e.g., 5-10%). CalCAP or IBank would not provide some level of loan “guarantee” to these private lenders based on a minimum LCFS clearing price. Rather, the private lending institutions would take on this role of estimating the value of LCFS, fuel savings and maintenance savings. CalCAP would however, put some of the pilot funds (e.g., 10 to 20%) into a loan loss reserve account.

CalCAP and its private lenders already have experience with a variety of fleets including ones with only one truck. However, it seems more likely that large fleets, both private and public would be able to find lenders willing to make these kinds of loans because they are likely to have established credit histories with financial institutions.

We observe that most private lenders are presently unwilling to make loans to commercial fleets based on LCFS value, citing that this is due to the LCFS not having an established floor price, as well as potential uncertainty of the program over a loan's horizon, thus making such loans too risky. Further research has shown that lenders generally may perceive making loans for ZEV purchases to be overly risky today, because there is not enough evidence of the vehicles re-sale or “residual” value after the term of the loan. Thus, CalCAP would also have an opportunity, through this program design, to demonstrate how to solve a larger financing problem for the ZEV industry, at least in part.

Scope of Program:

²⁵ As of Oct 1 approximately 1600 are pending and 550 vouchers are redeemed.

We expect that only larger fleets with a more advanced internal financing arm would be able to find private lenders to make loans either to fully or partially finance their vehicle purchase. It seems more likely that banks would be willing to loan for ZEV purchases to large fleets with established credit histories, especially if these are banks that these business or municipalities have previously worked with. Therefore, the scope of this program may be around 500 to 600 vehicles annually until 2024, when the ACT rule may take effect, after which point demand would be exponentially higher.

Based on a 20% loan/loss reserve ratio, using the formulas below we estimate the initial budget for this program would be \$26 million for the first year to fund 1100-1200 ZEV drayage trucks and buses (and accompanying infrastructure) and an additional \$24million for the second year for an additional 1100 to 1200 ZEVs and accompanying infrastructure . We note that a larger loan/loss reserve ratio could be needed due to the perceived risk created by the potential volatility of LCFS credit prices. This risk/ volatility would affect all loans. Further research is needed to determine what a guarantee based on a “contract for differences” for a minimum LCFS price would mean for the program budget and whether a larger loan loss reserve ratio is needed.

The option to fully finance ZEVs would involve guarantee the bank a minimum residual value for the vehicle at the end of the financing term. We estimate the residual value will likely need to be approx. 20% of the initial purchase price. Using average vehicle costs from HVIP, we initially estimate that this guarantee would represent about \$16.5 in guarantees for one year of loans.

Steps to Fleets receiving loans under loan/loss model:

1. CalCAP identifies a group of lenders willing to participate in program.
2. CalCAP funds initial loan/ loss reserve to cover loans to fleets in year 1.
3. Fleet identifies lender and applies to private lender for funding showing:
 - a. # of vehicles, expected credits per vehicle. Fleets would make initial estimate of credits based on vehicle type and expected mileage. Fleets would ideally demonstrate expected mileage based on their current fleet of either ZEV or conventional vehicles. OEMs and charging providers assist fleets with these calculations.
4. Private bank develops LCFS estimates and makes loan to fleet
5. Fleet signs contract consigning credits to the bank/ lending institution OR
6. Fleet signs capital loan documents, with partial repayment from LCFS proceeds
7. Lending institution applies to CalCAP for confirmation that a portion of the loan risk will be covered (in part) by loan/ loss reserve
8. Fleet or lender sells credits in LCFS market. Funds are used to re-pay loan and interest
9. After 8 years, loan is repaid. Loan/ loss reserve can be removed, and the funds recycled to fund other vehicles

We note that under this mechanism, private banks have upside potential if the consigned LCFS credits sell at above the estimate price. The private banks have downside risk if the consigned LCFS credits sell at below the estimated price or if the government/legislature were to discontinue the LCFS program in the future.

Formula details

Calculation of Loans:

We propose that loans be calculated by a third-party estimator based on:

1. A 3-year average of LCFS credit prices (V) at the time of the loan
2. An 8-year assumed vehicle life (L)
3. The expected # of credits per year (based on expected vehicle mileage and using the EV charging or H2 pathway) (c)
4. Simple interest (i)
5. Risk adjustment factor (R)

Using the following formula:

$$\text{Loan} = [(V \times C) L] \times R - i$$

The loan amount is reduced by the private lending institution by a risk adjustment factor (e.g., 0.66) to account for potential risk of LCFS credit prices falling below the expected value. The total loan amount would also be reduced by the estimated interest on the loan to avoid fleets making separate interest payments on the loan.

We estimate the *average* M/HDV would receive a loan of \$128,000 (minus interest) based on this formula. This will vary by vehicle type, and could be 50% higher for certain vehicles, such as transit buses.

Considerations for loan design:

1. Use 66-75% of expected credit value generated to reduce risk if credit prices fall below the average.
2. Most MHDVs are expected by CARB to have a useful life of 12 years. We chose 8 to be conservative. Any resale of the vehicle would need to include provisions to have the loan amount repaid or transferred to the next owner.
3. If credit prices are actually higher than expected, the private lending institution could recycle those funds into the program to provide more loans or to decrease risk for the lender.
4. Remaining credits generated after the loan term would belong to the fleet operator.
5. We have lots of data for some vehicle types/ vocations (ie, transit buses, school buses) other types there is less data currently available on mileage/ charging cycles.

6. If fleet sells a vehicle, as long as the vehicle is still in service it will still generate credits, would need to track vehicle location to gather data from new charging location/ provider.

Background on LCFS Program: LCFS credits are generated when EVs charge or when hydrogen vehicles are refueled so are generated over time. These credits can then be offered for sale in the LCFS market for purchase by other regulated parties. Commercial fleets/ commercial charging station owners maintain ownership of the credits they generate. Since commercial ZEVs are still a relatively nascent market, many commercial fleets are initially not aware that they generate credits or are not aware of how to sell them. Right now, one option available to commercial fleets is to assign their credits to a broker to sell on their behalf. The stream of credits is valuable and over the lifetime of the vehicle the cumulative amount (at current prices) could be enough to cover the incremental costs of the ZEV truck or bus in some cases. The challenge is that today fleets generally lack a means to monetize that future stream of value and bring it up-front.

BACKGROUND ON LCFS CREDITS

Under a Low Carbon Fuel Standard (LCFS), low carbon fuel providers earn credits that represent one unit of greenhouse gas emission reduction (i.e., one metric ton). The credits are based on the quantity of fuel provided or utilized (in units of energy or megajoules) together with the specific carbon-intensity score (in grams of CO₂e/MJ) assigned by the California Air Resources Board (ARB).^[1] For transportation electricity, the parties receiving the credit can vary but generally there are two categories of recipients:

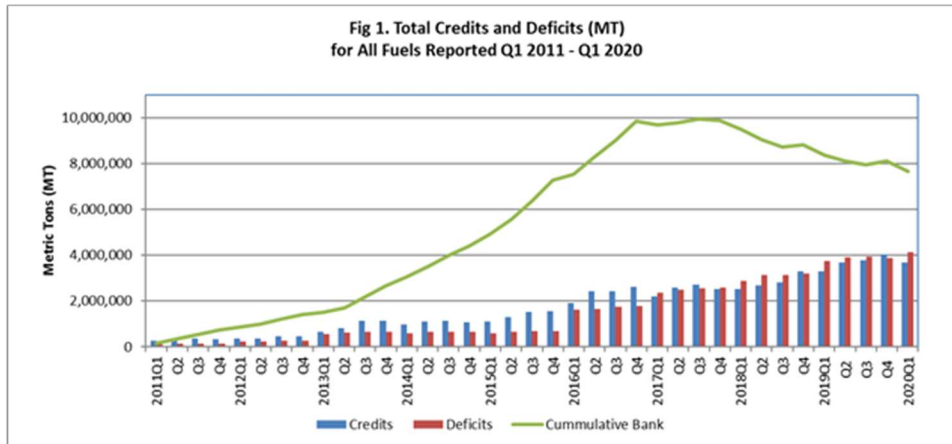
1. Non-residential EV charging (e.g., commercial or public fleets, public charging infrastructure): the owner of the fuel supply equipment (FSE)
2. Residential EV charging (e.g., single or multi-unit dwelling): the electric utility or load serving entity who in turn, is required to utilize the credits for vehicle rebates and/or charging infrastructure on behalf of their EV customers.

Commercial and public fleet owners purchasing battery electric trucks or buses will typically own and operate their fuel supply equipment (or charging station). In cases where they may not (e.g., a shared centralized fueling facility), the owner of FSE may elect to designate another entity by written agreement.^[2]

MARKET FOR LCFS CREDITS

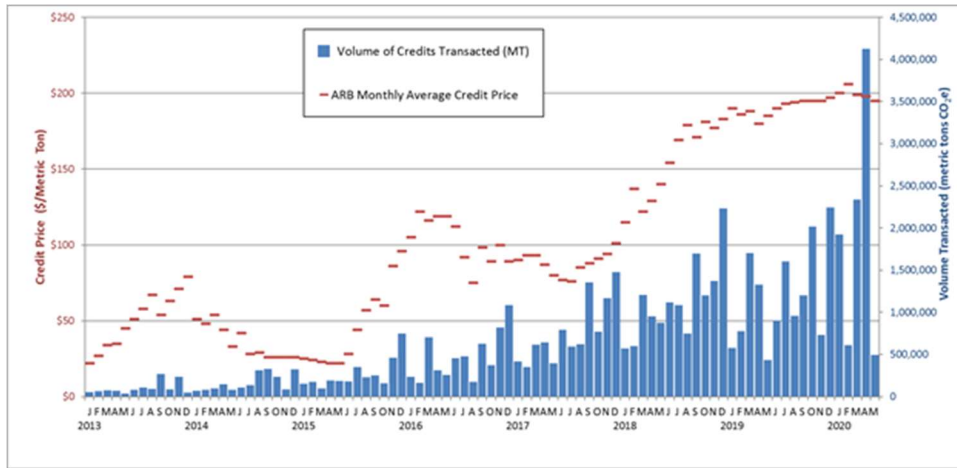
Producers and importers of fuels such as petroleum gasoline and diesel are required to reduce the average carbon-intensity (CI) of the fuels sold according to an annual compliance schedule. The standard schedule requires a 7.5% CI reduction by 2020 which rises to a 20% CI reduction by 2030, compared to 2010 levels. Options to comply include producing or blending lower-carbon biofuels into gasoline or diesel, reducing emissions from the refinery or crude oil production facilities, or purchasing credits from electricity, hydrogen, or biogas credit generators. Compliance is demonstrated on an annual basis.

The figure below shows the number of LCFS deficits that regulated entities generated overall (in MT of reductions owed) and the number of LCFS credits generated or purchased. The green line represents the total number of credits banked by regulated entities, based on the total cumulative credits exceeding the total cumulative deficits over time.



While regulated parties have been largely long from 2011 through 2017 on an annual basis, beginning in 2018 the industry has largely been short on credits and have begun drawing down on their credit banks. Regulated entities in need of credits can purchase credits from entities who have excess credits (e.g., commercial fleets, electricity utilities, producers of biofuels, etc) in a bilateral manner or via a broker. The information must be reported in the Low Carbon Fuel Standard Reporting Tool and Credit Bank & Transfer System (LRT-CBTS).^[3]

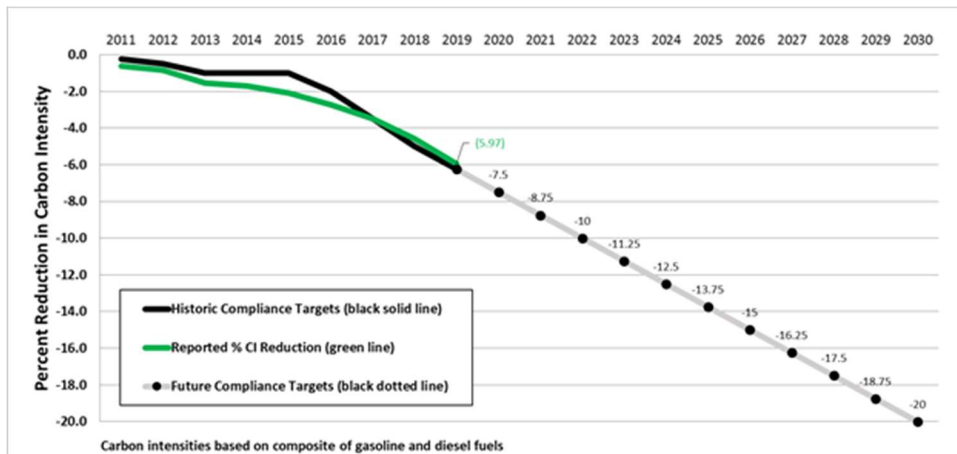
ARB reports on weekly credit transaction activities (quantity traded, credit prices, and dates of transfer) as well as monthly summary activity reports.^[4] Transportation fuel market services such as OPIS and Argus also report spot prices and may have additional analysis of credit information. An image of the credit prices and transaction volumes over time is shown in the below figure. Generally, prices have approached and stayed near the credit ceiling price (i.e. \$200 per credit in 2016 dollars) as the market became short. The credit ceiling prices is the amount established by ARB beyond which – if no additional supplies of LCFS credits are available – regulated parties are given additional time to make up those deficits.



From June 2019 to May 2020, approximately \$3.7 billion in transactions were recorded. This represents a subset of the overall “compliance” value of the program created for low carbon fuel providers and users.

MARKET EXPECTATIONS:

As shown below, the LCFS program will continue to deliver carbon-intensity reductions across the entire transportation fuel supply chain as the standard tightens from 7.5% in 2020 and eventually 20% in 2030. The pace of future compliance will demand increasing amounts of low-carbon fuels, including electricity, to be utilized in the transportation sector such that credit prices could be expected to remain relatively high going forward.



In its amendments to the LCFS program adopted in early 2018, ARB provided an illustrative example – being careful to note they weren’t predictive – of the effects of the proposed amendments on credit prices beginning in 2019. Based on the analysis of likely compliance scenarios, ARB estimated credit prices would be likely in the \$115-\$135 range based on the trajectory. It is noted that credit prices have in fact remained closer to \$200 in both 2019 and 2020, suggesting that ARB was conservative in its estimate of credit prices and that the market may remain closer to the credit ceiling price going forward.^[5]

^[1] The regulatory requirements and language can be found here: https://ww2.arb.ca.gov/sites/default/files/2020-07/2020_lcs_fro_oal-approved_unofficial_06302020.pdf

^[2] Ibid, p. 38.

^[3] <https://ssl.arb.ca.gov/lcsrt/Login.aspx>

^[4] <https://ww2.arb.ca.gov/resources/documents/lcs-credit-transfer-activity-reports>

^[5] ARB (March 2018), Initial Statement of Reasons, https://ww3.arb.ca.gov/regact/2018/lcs18/isor.pdf?_ga=2.115607430.1041324169.1597263042-260461183.1506027879, EX-9.