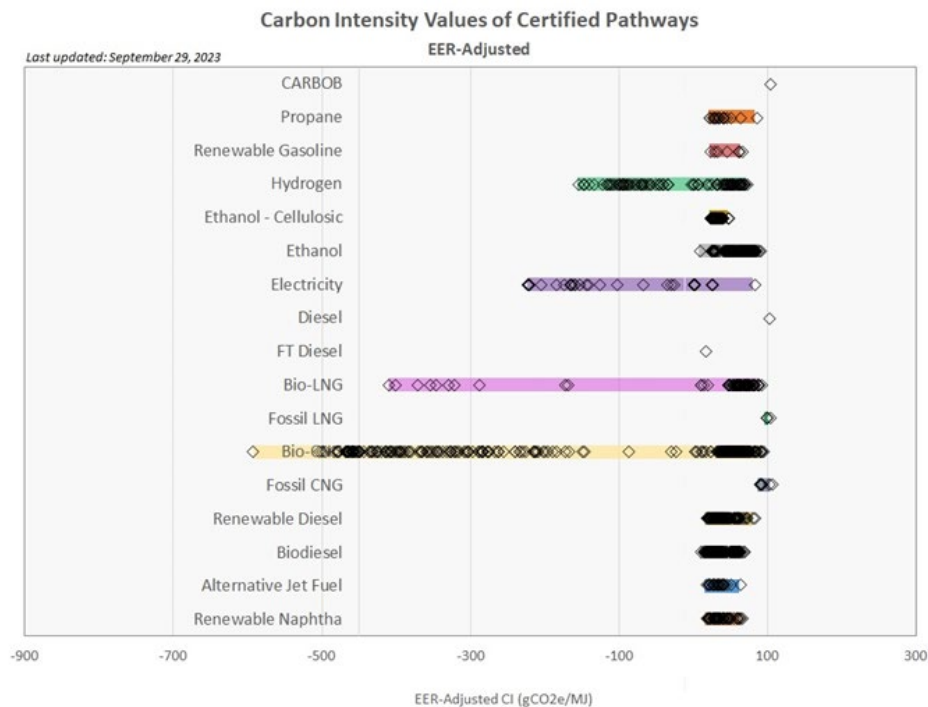


## Michigan Clean Fuels Standard for Medium- and Heavy-Duty Vehicles Factsheet

### What is a Clean Fuel Standard Policy?

A [Clean Fuel Standard \(CFS\) policy](#)—also referred to as a Low Carbon Fuel Standard—sets targets for reducing the carbon intensity (CI) of fuels supplied to transportation and encourages the investment, use, and production of cleaner low-carbon transportation fuels. Participants of a CFS program generate credits for reducing their CI by using alternative fuels such as electricity, biofuels, and hydrogen, to name a few. At the same time, those above the CI target produce deficits and must purchase credits to offset their higher CI. Ultimately, a CFS policy reduces greenhouse gas (GHG) emissions, creates a dependable alternative fuels market, and increases energy security.



Source: [LCFS Pathway Certified Carbon Intensities](#), CARB, September 2023.

### The Case for Medium- and Heavy- Duty Electric Vehicles in Michigan

A CFS policy is critical in addressing [medium- and heavy-duty \(MHD\) vehicles](#) pollution, including delivery vans, school buses, transit buses, fire trucks, garbage trucks, freight transportation, and more. Although MHD vehicles account for less than 10% of all vehicles on the road, they contribute over one-third of the sector's GHG emissions. The resulting low air quality disproportionately affects disadvantaged communities, bringing about adverse health effects like asthma and reduced lung capacity. Moreover, MHD vehicles are crucial drivers of the economy, particularly in Michigan with their gateways to Canada. Transitioning to MHD electric vehicles (EVs) is the best solution to these challenges.

[Union of Concerned Scientists: Clean Fuel Standards. \(2020\).](#)

[eIQ Mobility: How Fleets Can Harness California's LCFS Credits. \(2022\).](#)

[MJB&A: Medium- & Heavy-Duty Vehicles. \(2021\).](#)

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[Electrification Coalition: Electrifying Trucks and Buses in Michigan. \(2021\).](#)

[Michigan Clean Fuel Standard Factsheet. \(n.d.\)](#)

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[Great Plains Institute: The MHD EV Market: Plugging into the Future Part I. \(2021\).](#)

Michigan has already committed to electrification through its [MI Healthy Climate Plan](#), which aims to put two million EVs on the road by 2030 and sets targets for 30% of MHD EV sales and 100% for public transit vehicles and school buses. Additionally, the state has committed to electrifying 100% of the public MHD fleet by 2045. As the birthplace of the auto industry and home to the nation's leading and largest automakers, Michigan has a competitive advantage that makes these goals even more achievable. Michigan [school districts have already committed 152 electric school buses](#), which are anticipated to hit the roads soon. However, the overall MHD EV adoption lags neighboring midwestern states like Illinois and Minnesota, with just [four operating fleets in 2023](#). A CFS policy supports and provides multiple avenues to accelerate this transition, and Michigan has acted to harness the opportunity.

On April 12, 2023, Michigan introduced the [Clean Energy Future Plan](#), a bill aiming to implement CFS and reduce fuel CI by 25% by 2035 across the entire transportation fuels value chain. Participants earn credits by producing cleaner fuels, generating, or using cleaner electricity for transportation, using renewable fuels, or decarbonizing fossil fuels. The bill is pending for a Senate Committee hearing, which is to be determined.

### **Benefits of a Clean Fuel Standard Policy for Medium-and Heavy- Duty Electric Vehicles**

The process for [MHD electrification is hindered by market barriers](#) such as higher up front purchase price, few financing options, lack of higher-powered DC fast charging infrastructure, and inflexible electricity rate designs. A CFS policy serves as a unique and vital revenue source that can supplement current MHD EV policies and incentive programs. Through its credit incentive system, credits are provided back to the owner or operator of an EV charging station, such as a fleet operator. The revenue from selling the credits can be used to offset the current upfront cost differential between EVs and internal combustion engine vehicles as the price of EV batteries declines. In the end, a CFS policy can provide a stable and long-term funding source, unlike most state and local funding sources for EV programs that can be depleted quickly, resulting in start-stop EV programs.

California was [the first state to adopt this policy in 2009](#), with various modifications to the policy in 2013, 2016, and 2018, with its most recent updated requirements of a 20% reduction in the state fuel pool by 2030. In 2018, California amended its policy to include a [ZEV infrastructure credit](#), which was created to assist in the deployment of ZEV infrastructure, recognizing electricity as a fuel. Therefore, fleets that own and operate chargers to support their EVs can generate LCFS credits. Revenue from MHD EVs LCFS credits is significant compared to light-duty vehicles. For example, a Class 8 electric truck that drives 60,000 miles annually can offset 173 metric tons of CO2 emissions and, assuming a 2019 LCFS credit worth of \$196, the revenue opportunity for the EV fleet comes down to approximately \$33,900 per year per vehicle. Below are more examples of other MHD EVs revenue opportunities.

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## What is the Revenue Opportunity for EV Fleets?



**Class 6** + 20,000mi annually = 36 metric tons CO<sub>2</sub> displaced x \$196 = **\$7,100**  
(electric box truck)



**eTRU** + 40,150 kWh/year = 34 metric tons CO<sub>2</sub> displaced x \$196 = **\$6,700**  
(Transportation Refrigeration Unit, assumes 110 kWh per eTRU operation in a 24 hour period)



**Forklift** + 2 hrs daily operation = 18 metric tons CO<sub>2</sub> displaced x \$196 = **\$3,500**  
(5,000 lb capacity, assumes 50 weeks at 5 days/week)



**School bus** + 10,800mi annually = 19 metric tons CO<sub>2</sub> displaced x \$196 = **\$3,700**

*Figures above are rounded for ease of calculation and are not meant to be exact.*

Source: [SDGE](#), Power Your Drive for Fleets: Earn Revenue for EVs with California's Low Carbon Fuel Standard (LCFS) Program

In addition to California, the CFS policy has been adopted by Oregon, British Columbia, and Washington, each mirroring the version in California but reflecting differences through each market setting. [The Oregon Clean Fuels program \(CFP\)](#) emphasizes the importance of integrating MHD EVs into GHG reduction goals and implemented an [advanced crediting program](#) for fleets currently participating in pilot programs with a minimum requirement of one EV purchase. Credits are generated quarterly when the fleet reports the electricity used to power its vehicles. The rate of credit generation may seem a small initiative until enough credits are generated to sell them and reinvest the revenue into more EVs. Through the advanced crediting program, once a vehicle is put into service, an eligible fleet manager can request the Department of Environmental Quality issue credits up to six years in advance. Other states like Minnesota, New Mexico, Illinois, and New York have either considered or have already introduced bills proposing CFS implementation.

### Michigan CFS Policy Design Considerations

As Michigan takes the steps to implement a CFS policy, state policymakers must incorporate MHD electrification into the policy design. Charging these EVs can generate significant credits and increase MHD EV adoption. The state should start by considering flaws and lessons learned from other CFS policies. For instance, experts have suggested that California's LCFS should improve its carbon accounting by ending "avoided methane" crediting for factory farm gas in 2024, which would [more than double](#) the amount of LCFS incentives that go towards EVs between now and 2030 from \$15 billion to \$34 billion. Given that Michigan is within the top 20 states with the highest agriculture production in terms of cash receipts, factoring in how CI is calculated can determine how expensive credits for MHD EV charging will be. Furthermore, there is broad interest at the local level in ensuring that MHD vehicle pollution is addressed efficiently in the state through a CFS policy. Therefore, policymakers must also ensure that stakeholder input from groups like the [Michigan Clean Fuel Standard Coalition](#), [Clean Fuels Michigan](#), [Michigan Clean Cities](#), and other advocacy groups are included in the design process.

### Equity and Other Considerations

A CFS makes cleaner fuels more affordable and polluting fuels more expensive. However, existing inequalities will increase if low-income people are left driving older, inefficient, and polluting cars. An

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equitable path to clean fuels and transportation electrification must ensure that those costs are shared fairly and that all communities benefit, especially those historically overburdened by transportation pollution. A percentage of the financial value of credits should be invested back into communities of color, low-income communities, and other communities that have been most adversely impacted by transportation pollution.

Oregon's Clean Fuels Program is currently leading the way in embedding equity into the electrification process. The state's DEQ selected the [Forth Mobility Fund](#) to be the backstop aggregator and works with them to collect unclaimed credits and design programs that promote and support transportation electrification across the state. An example of a resulting program is the [Electric Tractor Program](#), funded with \$27,300 from the \$79,200 credit revenue generated in 2020. The program aims to increase awareness, knowledge, access, and adoption of electric farm equipment. The piloted tractors are installed with remote sensors to allow the team to measure potential cost savings and collect data on tractor use cases. The project aims to address the slow adoption of electric farm equipment, that is, MHD EVs, both in the agriculture sector and, more broadly, rural Oregon. Lessons learned from this pilot will help advance the electrification of farm equipment while the project's planned outreach and education events hope to also draw attention to the benefits of overall MHD vehicle electrification. This outlined example is only a sneak peak of what CFS standards can be. A Michigan CFS program should have even more of an equity focus in the future than current models.

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