



INNOVATIVE CARS AND TRUCKS CREDITS

EVALUATION SUMMARY | JULY 2022 | 2022-TE34

Expenditure	Innovative Cars Income Tax Credit	Innovative Trucks Income Tax Credit
TAX TYPE	Income Tax	Income Tax
YEAR ENACTED	1992	1992
REPEAL/EXPIRATION DATE	January 1, 2026	January 1, 2026
REVENUE IMPACT (TAX YEAR 2019)	Greater than \$24.9 million	Could not determine
NUMBER OF TAXPAYERS	Greater than 4,965	Could not determine

KEY CONCLUSION: The Innovative Cars Credit likely encourages some individuals to purchase electric vehicles, but is one factor among many that have driven an increase in electric vehicle purchases in recent years. The Innovative Trucks Credit has been used minimally due to there not being many available electric trucks to purchase in recent years.

WHAT DO THESE TAX EXPENDITURES DO?

INNOVATIVE CARS INCOME TAX CREDIT [Section 39-22-516.7, C.R.S.]—Provides purchasers a refundable income tax credit for the purchase or lease of an eligible new electric motor vehicle. The credits are currently \$2,500 and \$1,500 for a purchase and lease, respectively.

INNOVATIVE TRUCKS INCOME TAX CREDIT [Section 39-22-516.8, C.R.S.]—Provides purchasers a refundable income tax credit for the purchase or lease of an eligible new electric truck. Credits range, depending on vehicle type, from \$2,500 to \$10,000 for purchases and from \$1,500 to \$5,000 for leases.

WHAT IS THE PURPOSE OF THESE TAX EXPENDITURES?

Statute and the enacting legislation for the credits do not explicitly state their purpose; therefore, based on the operation of the credits, and their legislative history, we considered the following potential purpose: to increase the use of electric cars and trucks.

WHAT POLICY CONSIDERATIONS DID THE EVALUATION IDENTIFY?

The General Assembly may want to consider establishing statutory purposes and performance measure(s) for the credits.

INNOVATIVE CARS AND TRUCKS CREDITS

EVALUATION RESULTS

WHAT ARE THESE TAX EXPENDITURES?

This report covers the following two income tax credits for a range of motor vehicles:

INNOVATIVE CARS INCOME TAX CREDIT (Innovative Cars Credit) [Section 39-22-516.7, C.R.S.]—Provides purchasers an income tax credit for the purchase or lease (longer than 2 years) of an eligible new electric motor vehicle. To be eligible, the vehicle must be registered in the State, have less than an 8,500 lbs. gross vehicle weight rating (gvwr), and be propelled to a significant extent by an electric motor. Eligible vehicles include the following:

- **Battery Electric Vehicle (BEV)**—A vehicle that exclusively uses electricity from a battery to power an electric motor, and is charged from an external source (i.e., Nissan Leaf, Tesla Model 3).
- **Plug-in Hybrid Electric Vehicle (PHEV)**—A vehicle that uses electricity from a battery to power an electric motor in addition to an internal combustion engine, which uses traditional fuel (i.e., Chevrolet Volt, Toyota Prius Prime).
- **Fuel Cell Electric Vehicle (FCEV)**—A vehicle that uses fuel cells powered by hydrogen, stored onboard, to create electricity to power an electric engine, sometimes in combination with a battery (i.e., Toyota Mirai).

As shown in Exhibit 1, the credit is designed to phase out over time and the amount of the credit depends on the tax year in which the qualifying vehicle was purchased or leased, with larger credits available for purchases. If the credit exceeds a taxpayer's Colorado tax liability in the

tax year the eligible vehicle was purchased, the taxpayer can receive a refund for the credit amount in excess of their tax liability.

EXHIBIT 1. INNOVATIVE CARS CREDIT AMOUNTS				
Tax Year(s)	2017–2019	2020	2021–2022	2023–2025 ¹
Purchase	\$5,000	\$4,000	\$2,500	\$2,000
Lease	\$2,500	\$2,000	\$1,500	\$1,500

SOURCE: Section 39-22-516.7 (4)(a), C.R.S.
¹The credit is currently set to expire following Tax Year 2025.

The Innovative Cars Credit was enacted in 1992 by House Bill 92-1191. Originally, the credit was available for purchases of innovative vehicles using a broader range of fuel, including natural gas, ethanol, and methanol, in addition to electricity, and was calculated as 5 percent of the purchase price. The credit has been extended and changed multiple times since it was created, with House Bill 16-1332 establishing the credit in its present form in 2016 and restricting it to electric vehicles. In 2019, House Bill 19-1159 extended the credit through Tax Year 2025.

To claim the credit, eligible taxpayers file the Innovative Cars Credit and Innovative Truck Credit (Form DR 0617) and a copy of the associated purchase agreement or lease agreement for the credit with their income tax return with the Department of Revenue (Department). Additionally, the credit can be claimed by the purchaser's financing entity if the purchaser has entered into an election statement assigning the credit to the financing entity. This allows purchasers to receive the value of the credit through a dealership at the time the vehicle is purchased rather than waiting to file their tax return. The financing entity must compensate the purchaser for the full value of the credit minus a maximum \$150 processing fee. The financing entity must also include the Innovative Motor Vehicle Tax Credit Election Statement (Form DR 0618), in addition to the other required documents for each vehicle, when filing its income tax return.

INNOVATIVE TRUCKS INCOME TAX CREDIT [Section 39-22-516.8, C.R.S.]—Provides purchasers an income tax credit for the purchase or lease of an eligible new electric truck. To be considered eligible, the truck must be registered in the State, have a gvwr of more than 8,500 lbs., and be propelled to a significant extent by an electric motor, similar to the electric cars credit. There are four categories of qualifying trucks as follows:

- Light-duty passenger motor vehicle—passenger motor vehicles with a gvwr of greater than 8,500 lbs., including vans, that can seat 12 passengers or less.
- Light-duty electric truck—a truck with a gvwr of less than or equal to 10,000 lbs., (i.e., pickup truck, mini bus), not including light-duty passenger motor vehicles.
- Medium-duty electric truck—a truck with a gvwr of more than 10,000 lbs. up to 26,000 lbs. (i.e., delivery trucks).
- Heavy-duty truck—a truck with a gvwr of greater than 26,000 lbs. (i.e., semi-truck, garbage truck).

Similar to the Innovative Cars Credit, the Innovative Trucks Credit is designed to phase out over time and provides a larger credit for purchases compared to leases. Additionally, the credit amount varies depending on the truck category, with larger—and typically more expensive—trucks qualifying for a larger credit amount. If the credit exceeds a taxpayer's Colorado tax liability in the tax year the eligible vehicle was purchased, the taxpayer can receive a refund for the credit amount in excess of their tax liability. Exhibit 2 shows the amount of the credits:

EXHIBIT 2. INNOVATIVE TRUCKS TAX CREDIT AMOUNTS

Tax Year(s)	2017–2019 (Purchase/Lease)	2020 (Purchase/Lease)	2021–2022 (Purchase/Lease)	2023–2025 ¹ (Purchase/Lease)
Light-duty passenger motor vehicle	\$5,000/ \$2,500	\$4,000/ \$2,000	\$2,500/ \$1,500	\$2,000/ \$1,500
Light-duty electric truck	\$7,000/ \$3,500	\$5,500/ \$2,750	\$3,500/ \$1,750	\$2,800/ \$1,750
Medium-duty electric truck	\$10,000/ \$5,000	\$8,000/ \$4,000	\$5,000/ \$2,500	\$4,000/ \$2,500
Heavy-duty electric truck	\$20,000/ \$10,000	\$16,000/ \$8,000	\$10,000/ \$5,000	\$8,000/ \$5,000

SOURCE: Section 39-22-516.8 (8.3)(b) and (8.5)(b), C.R.S.

¹The credit is currently set to expire following Tax Year 2025.

The Innovative Trucks Credit was initially enacted in 1992 by House Bill 92-1191, as a part of the Innovative Cars Credit. Since its passage, the credit has been modified several times, with significant changes occurring in 2014, when House Bill 14-1326 separated the credit for trucks into its own credit, and in 2019, when House Bill 19-1159 extended the credit through Tax Year 2025 and limited the credit to be available only for electric trucks after 2021.

The Innovative Trucks Credit is claimed in an identical manner as discussed for the Innovative Cars Credit.

WHO ARE THE INTENDED BENEFICIARIES OF THE TAX EXPENDITURES?

Statute does not explicitly state the intended beneficiaries of the Innovative Cars or Innovative Trucks Credits. Based on the operation of the credits, we inferred that the intended beneficiaries are individuals and businesses seeking to purchase either an electric car or truck. Electric vehicles did not become widely available to purchasers until roughly 2011, with the release of the Chevrolet Volt (PHEV) and the Nissan Leaf (BEV), but the market for electric vehicles has grown considerably since then. According to Department and Colorado Energy Office data, as of April 2022 there were 51,451 electric vehicles

registered in the state, which account for roughly 1 percent of all vehicle registrations. Currently, Colorado ranks tenth among states in total electric vehicle sales since 2011.

Additionally, we considered electric motor vehicle dealers as beneficiaries, since the availability of the credits may encourage consumers to purchase electric vehicles. Further, because credits can be assigned to a financing entity by the purchaser of the vehicle, dealers acting as the financing entity are able to apply the credits to the purchase price, thereby lowering the purchase price of the vehicle for their customers, and claiming the credits themselves.

To the extent that the credit encourages the use of electric vehicles, the general public also indirectly benefits from reduced greenhouse gas emissions and air pollution. According to the Environmental Protection Agency (EPA), the transportation sector is the largest source of greenhouse gas emissions in the United States, contributing 27 percent of emissions in 2020. Additionally, according to the Colorado Department of Public Health and Environment, internal combustion vehicles are the largest source of nitrogen oxides (NO_x), which contribute to the formation of ground-level ozone, a form of air pollution that causes hazardous breathing conditions, especially among individuals with other health complications such as asthma, heart disease, and lung disease.

According to environmental research, electric vehicles generally contribute less to greenhouse gas emissions and air pollution compared to traditional vehicles. For example, the International Council on Clean Transportation reported that in 2021, the total lifecycle greenhouse gas emissions for electric vehicles, which includes emissions from electricity generation necessary to charge electric vehicles and emissions related to the manufacture and maintenance of the vehicles, was significantly lower for electric vehicles than for comparable traditional vehicles. However, the overall emissions reduction varies significantly based on efficiency of the vehicle and the source of electricity used to charge the vehicle. The adoption of electric vehicles has followed similar trends as

internal combustion vehicles, with more vehicles being released that are larger and inherently less fuel efficient. However, if the electricity used for charging the vehicle comes from renewable energy sources, the realized emissions reductions can be more, while vehicles charged using electricity from coal and natural gas (fossil fuels) power plants realize a less significant emissions reduction. Furthermore, charging vehicles using coal and natural gas power has the effect of transferring the pollution from the location where the vehicle is driven to the location of the power generation source, since electric vehicles emit no pollution directly, but increase the amount of electricity that must be generated to charge them.

WHAT IS THE PURPOSE OF THESE TAX EXPENDITURES?

Statute and the enacting legislation for the credits do not state their intended purpose; therefore, we could not definitively determine the General Assembly's original intent for either credit. Based on the operation of the credits, and their legislative history, we considered the following potential purpose: to increase the use of electric cars and trucks. Specifically, although it does not directly state a purpose, the legislative declaration for House Bill 14-1326 provides that, "Income tax credits are an important incentive for taxpayers looking to purchase alternative fuel vehicles and accelerate the entry of such vehicles into the Colorado market." Further, this purpose aligns with Executive Order B 2019 002, which set a policy goal of having 940,000 electric vehicles on the road in the state by 2030, and the State's Electric Vehicle Plan for reaching near full electrification in light-duty vehicles and 100 percent zero-emissions in new medium- and heavy-duty vehicle fleets by 2050.

ARE THE TAX EXPENDITURES MEETING THEIR PURPOSE AND WHAT PERFORMANCE MEASURES WERE USED TO MAKE THIS DETERMINATION?

We could not definitively determine whether the Innovative Cars and Trucks Credits are meeting their purposes because their purposes are

not provided in their respective sections of statute or their enacting legislation. However, we found that the Innovative Cars Credit is likely meeting the potential purpose we considered for this evaluation to some extent. However, its impact has decreased as the credit amount has become smaller in recent years and it appears to act as one of multiple factors that influence the purchase or lease of electric cars.

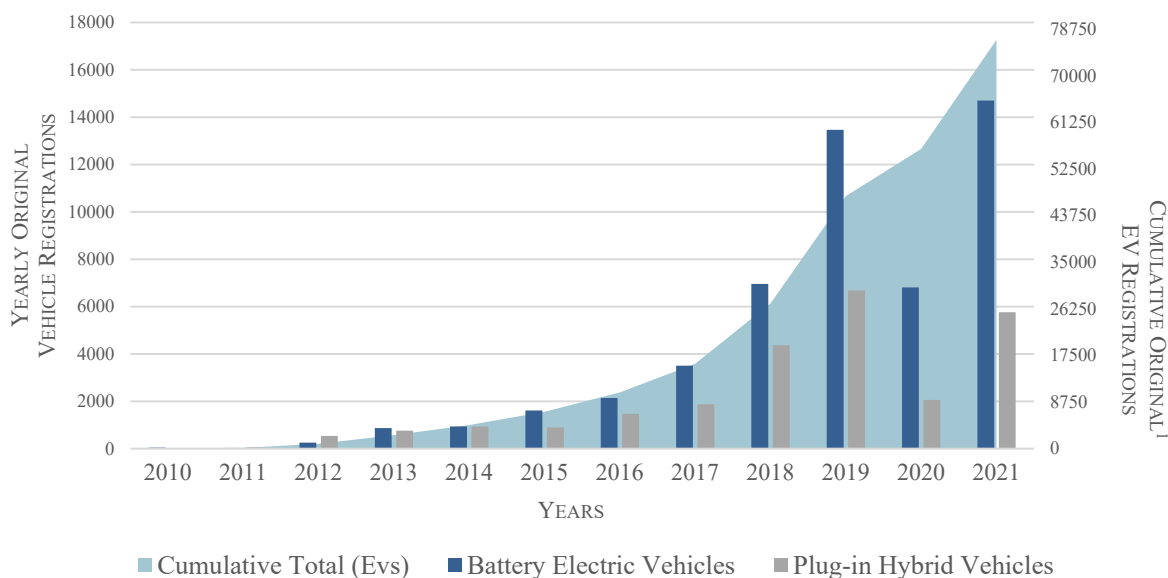
We found that the Innovative Trucks Credit has not met its purpose because electric trucks have not been widely available and, therefore, the credit has been used infrequently.

Statute does not provide performance measures for either credit. Therefore, we created the following performance measures to assess their effectiveness in meeting their potential purposes.

PERFORMANCE MEASURE #1: To what extent has the Innovative Cars Credit increased the purchase or lease of electric cars?

RESULT: We found that the Innovative Cars Credit has acted as one factor among many that have encouraged individuals and businesses to purchase electric vehicles in recent years. While the 51,451 electric vehicles on the road in the state as of April 2022 only make up about 1 percent of all vehicles currently registered in Colorado, according to data provided by the Colorado Energy Office, the number of electric vehicles in Colorado has increased substantially over the last 5 years. New electric vehicle registrations have increased from about 5,400 in Calendar Year 2017 to 20,500 in Calendar Year 2021, an increase of about 280 percent. Exhibit 3 provides electric vehicle registrations by type of vehicle for Calendar Years 2010 through 2021. FCEVs are not included in the graphic because there are no FCEVs currently registered in the state and no hydrogen fueling stations available to support their use.

EXHIBIT 3. INCREASING NUMBER OF ELECTRIC VEHICLES IN COLORADO, CALENDAR YEARS 2010 THROUGH 2021



SOURCE: EvaluatCO, Colorado Energy Office.

SOURCE: Office of the State Auditor analysis of EvaluateCO data from Colorado Energy Office.

¹ Original registrations are vehicles that are registered for the first time, and could be a new sale or a vehicle coming from out-of-state.

While the number of electric vehicles in the state has increased, it is likely that many individuals would have purchased an electric vehicle regardless of the availability of the credits. Based on the \$47,000 average price of a BEV and \$44,000 for a PHEV in Colorado, the \$2,500 Innovative Cars Credit reduces the cost by about 5 percent. Making electric vehicles modestly less expensive could encourage some individuals to purchase them. However, because of the relatively high price of electric vehicles, it appears that the credit may be a less important factor for many potential electric vehicle purchasers, in particular as the available credit amount has decreased from \$5,000 in Tax Year 2017 to \$2,500 in Tax Year 2021 and 2022.

To assess the relative impact of the credit, we reviewed academic research on the effectiveness of incentives for electric vehicle purchases and found that their impact depends on the size of the incentive and is typically modest. For example, research in *The Journal of*

Environmental Research Letters indicates that incentives (i.e., tax credits, purchase rebates, etc.) are generally effective at increasing the purchase of electric vehicles marginally, with purchase rebates being more effective than tax credits. Additionally, research published in the *Journal of Energy Policy* shows that each \$1,000 in available tax credits is associated with a predicted increase of electric vehicle sales of roughly 2.6 percent. Applying this research finding to Colorado's current \$2,500 credit, it appears that the credit could be associated with an increase in electric vehicle sales about 6.5 percent, as compared to not having the credit.

Our review of economic research indicates that many factors beyond state-level incentives likely drive electric vehicle purchases, which, similar to the trend in Colorado, has increased nationwide in recent years. According to this research, the following other factors are sometimes equally or more important to individuals considering whether to purchase electric vehicles:

- ABILITY TO AFFORD A RELATIVELY HIGH-PRICED VEHICLE—Electric vehicles are generally more expensive than comparable traditional vehicles. Although lower-priced models can cost about \$28,000, the average cost of a new electric vehicle in the United States is \$67,000. Therefore, most electric vehicle purchases are made by wealthier individuals and those with higher incomes.
- SUPPORT OF THE TECHNOLOGY AND/OR UNDERSTANDING OF POTENTIAL BENEFITS—Although electric vehicles have a higher initial purchase price, they generally require less maintenance and are less expensive to fuel than traditional vehicles. For example, according to information reported by Yale Climate Connections, as of June 2022, the cost to charge an electric vehicle in Colorado is equivalent to paying \$1.39 per gallon to fuel a traditional vehicle, compared to the \$4.37 per gallon average gas price in Colorado. Awareness of these benefits can make electric vehicles more attractive to potential buyers.

- **DESIRE TO BENEFIT THE ENVIRONMENT**—Electric vehicle purchasers often indicate they decided to purchase an electric vehicle to reduce their personal contributions to air pollution and greenhouse gas emissions. Therefore, awareness and concern regarding traditional vehicle emissions is an important factor among electric vehicle purchasers.
- **ADEQUATE ACCESS TO CHARGING INFRASTRUCTURE**—Although electric vehicles can be charged using a standard 120 volt home electrical outlet, doing so is significantly slower than using charging ports designed for electric vehicles and may not be practical for individuals with longer daily commutes. Therefore, many potential electric vehicle owners also need to install vehicle charging ports at home, which can cost \$1,000 to \$4,000. Further, individuals who live in apartments or otherwise lack access to a power source where they park their vehicle, may not be able to charge their vehicle at home and need access to a public charging port. Additionally, access to public charging ports is important for individuals who wish to take trips longer than their electric vehicle’s range. Therefore, growth of charging infrastructure also plays an important role in encouraging electric vehicle use. According to Colorado Energy Office data, the number of public charging ports has increased substantially in Colorado in recent years, with 3,186 public charging ports and an additional 896 charging ports for only Tesla vehicles as of April 2022, compared to 164 public charging ports in Calendar Year 2010.
- **INCREASING NUMBER OF VEHICLE MODELS**—The availability of a broad range of vehicle models can increase electric vehicle adoption by making it more likely that potential buyers will find a model that suits their needs within their budget. Further, the availability of models with longer battery ranges helps encourage adoption among potential purchasers who need to be able to travel longer distances without recharging. Therefore, the increasing number of available electric vehicle models that have become available in recent years has likely encouraged electric vehicle adoption. Additionally, some

electric vehicle owners report being more motivated to make their purchase based on the performance and design of the vehicle as opposed to tax incentives. For example, according to research from the Journal of the Transportation Research Board on electric vehicle adopters, owners of Tesla electric vehicles, which made up about 38 percent of electric vehicle registrations in Colorado from Calendar Years 2010 through 2021, are more likely motivated to make their purchase because of vehicle performance and enthusiasm for new technology, rather than tax credits, as compared to other electric vehicle owners.

- **ABILITY TO CLAIM THE FEDERAL PLUG-IN ELECTRIC DRIVE VEHICLE CREDIT**—Electric vehicle purchasers can qualify for a federal credit up to \$7,500, which can act as a significant incentive by reducing the cost of purchasing an electric vehicle. However, the credit is not refundable, meaning that taxpayers with tax liabilities that are less than the credit cannot receive a refund for the unused portion of the credit. This makes the credit less beneficial to taxpayers with lower and middle incomes. For instance, in order to have a federal tax liability of at least \$7,500, which would allow a taxpayer to use the maximum federal credit amount, individuals and joint filers who take the standard deduction and claim no other tax credits or deductions generally need to earn more than \$66,000 and \$91,000, respectively. Additionally, the federal credit begins phasing out for vehicles from vehicle manufacturers that have recorded 200,000 in eligible vehicle sales in the United States, which excludes Tesla and General Motors vehicles from the credit.

PERFORMANCE MEASURE #2: To what extent has the Innovative Trucks Credit increased the adoption of electric trucks?

RESULT: We found that the Innovative Trucks Credit has not met its potential purpose because it has been used minimally due to the limited availability of qualifying electric trucks. Specifically, from Calendar Years 2010 to April 2022, there were only 15 newly registered light-, medium- or heavy-duty electric trucks in Colorado that would have

been eligible for the credit. We cannot report the number of taxpayers that actually claimed the credit because too few taxpayers claimed it to report this information without revealing confidential taxpayer information and because the Department combines the revenue impact of the Innovative Trucks Credit with the Innovative Cars Credit for reporting purposes.

Trucks that would qualify for the credit were not widely available to consumers until recently. For example, the first electric light-duty passenger truck became available in September 2021. Of the 15 vehicles eligible for the credit, nearly all were registered in 2021 or 2022. The availability of eligible trucks is likely to continue to increase in future years as more vehicle manufacturers develop electric truck models and prepare to meet the California Advanced Clean Trucks Regulation. The rule requires manufacturers selling vehicles in California, the country's largest vehicle market, and other states that have adopted the rule, to sell a growing percentage of zero-emission medium and heavy-duty trucks, starting in 2024. Therefore, the Innovative Trucks Credit is likely to be used more frequently and have a potential impact in the future.

WHAT ARE THE ECONOMIC COSTS AND BENEFITS OF THE TAX EXPENDITURES?

According to the Department's 2021 Annual Report, the credits had a revenue impact of about \$24.9 million in Tax Year 2019, the most recent year with data available. However, this revenue impact amount does not include the credits claimed by corporate taxpayers, which the Department could not report due to confidentiality requirements. Exhibit 4 provides the credits' revenue impact for Tax Years 2015 through 2019.

EXHIBIT 4. REVENUE IMPACT OF THE INNOVATIVE CAR AND TRUCK CREDITS, TAX YEARS 2015 THROUGH 2019

Tax Year	Credits Claimed	Revenue Impact
2015	2,277	\$9.0 million
2016	3,064	\$17.4 million
2017	2,227	\$12.8 million
2018	5,463	\$27.7 million ¹
2019	4,965	\$24.9 million ¹

SOURCE: 2021 Department of Revenue Annual Report

¹Revenue impact amounts do not include credits claimed by corporate taxpayers, which the Department could not report due to confidentiality requirements.

Additionally, because wealthier households are more likely to be able to afford an electric vehicle, the benefit provided by the credit has mostly gone to individual taxpayers with higher incomes, with about 84 percent of the value of the credits claimed by taxpayers with incomes of \$100,000 or more. Exhibit 5 provides the proportion of credits claimed by taxpayers by income level.

EXHIBIT 5. DISTRIBUTION OF INNOVATIVE CARS AND TRUCKS CREDITS BY INCOME¹, TAX YEAR 2018

Income Range	Percentage of Statewide Credit Amount Claimed
Under \$50,000	4%
\$50,000 to \$99,999	12%
\$100,000 to \$199,999	35%
\$200,000 to \$499,999	36%
\$500,000 and above	13%

SOURCE: 2018 Department of Revenue Individual Statistics of Income.

¹ Includes individual taxpayers, but does not include corporate taxpayers.

Further, a 2021 report published by the Massachusetts Institute of Technology, which combined multiple studies on electric vehicle adoption demographics, found that the majority of electric vehicle owners are White homeowners with high-incomes and that Black, Hispanic or Latino, and low-income households are less likely to own

electric vehicles. Specifically, Black and Latino purchasers represent only 12 percent of electric vehicle purchasers in the country, despite making up about 33 percent of the U.S. population. According to the report, people of color also have a lower probability of having adequate access to charging infrastructure. Although the report is not specific to Colorado, it may indicate that White residents tend to benefit from the credits more often than Black, Hispanic and Latino residents. Additionally, data from the U.S. Department of Labor on income disparities shows that Black, Hispanic, Latino, Native American, and Multiracial Coloradans make roughly 31 percent less (\$41,000/year average) than White Coloradans (\$60,000/year average). Therefore, it appears that fewer of these individuals are able to afford an electric vehicle.

To the extent that the credits encourage the increased use of electric vehicles, they may also provide environmental benefits because, as discussed, electric vehicles typically cause less air pollution and greenhouse gas emissions than comparable traditional vehicles, primarily when operated on low-carbon renewable electricity sources. Although we lacked the data necessary to quantify the environmental benefits of the credits, it is likely that the benefits have been relatively small. This is because only about 1 percent of vehicles on the road are electric vehicles and, as discussed, many of these vehicles would likely have been purchased regardless of the credits. However, the credits could have a more substantial impact in future years if electric vehicle use becomes more widespread. Additionally, as shown in the Intergovernmental Panel on Climate Change's report, *Climate Change 2022: Mitigation of Climate Change*, electric vehicles offer the largest environmental benefits when the electricity used to charge them is generated through renewable sources. Thus, the potential benefits will increase to the extent that the proportion of the state's electricity generated from fossil fuels decreases. According to the U.S. Energy Information Agency, the share of energy generated by fossil fuels in Colorado decreased from 90 percent in 2010 to 67 percent in 2021, which is roughly a 23-percentage point decrease in twelve years.

WHAT IMPACT WOULD ELIMINATING THE TAX EXPENDITURES HAVE ON BENEFICIARIES?

If the Innovative Cars and Trucks Credits were eliminated, individuals purchasing electric vehicles would no longer be able to use the credit to offset part of the vehicles' cost. As discussed, the credits are more frequently used by higher-income households; however, eliminating credits would likely have a greater impact for purchasers with relatively lower-incomes. Exhibit 6 displays an example of the expected increase in cost for the base model of a Nissan Leaf S, the most popular low-cost BEV purchased in Denver, assuming the sales price is the manufacturer's suggested retail price (msrp), the purchaser assigns the credit to the financing entity, and contributes a \$2,000 down payment. As shown, the repeal of the Innovative Cars Credit would result in a \$41 increase in the monthly payment for this vehicle.

EXHIBIT 6. EXAMPLE OF INCREASED COSTS FOR A LOW COST BEV PURCHASED IN DENVER

Sales Price (msrp)	\$28,885
Sales Tax	\$2,545
Dealer Fees	\$599
Interest Rate and Term (% per number of months)	5.9% at 72 months
Income Tax Credit	-\$2500
Monthly Payment (without tax credit)	\$455, (\$496)
Monthly difference without tax credit	\$41

SOURCE: Office of the State auditor analysis based on manufacturer's suggested retail price for a Nissan Leaf S.

Increasing the effective cost of an electric vehicle could discourage some individuals from purchasing one, since as discussed, tax credits are an important factor for some individuals when considering the purchase of an electric vehicle. However, most of the credits have gone to higher-income individuals who may be less sensitive to increases in cost and for whom the credit may be less influential than other factors.

Additionally, eliminating the credit may have less of an impact on the purchase of higher-priced electric cars and trucks. For example, the most recently available electric truck, Rivian R1T, has an msrp of \$67,500, therefore the current \$3,500 credit would cover about 5 percent of the msrp, compared to the Nissan Leaf S, that has an msrp of \$28,885, about 9 percent of which is covered by the credit.

ARE THERE SIMILAR TAX EXPENDITURES IN OTHER STATES?

We identified a total of 27 states, including Colorado, that offer incentives for the purchase of either electric passenger vehicles or medium/heavy-duty trucks. There are an additional six states that have programs limited to just buses. However, Colorado is the only state we identified that provides an income tax credit for electric passenger vehicles, with other states offering incentives in the form of rebates or sales tax exemptions. Exhibit 7 summarizes the electric vehicle incentives available.

EXHIBIT 7. SUMMARY OF STATES THAT PROVIDE AN INCENTIVE FOR THE PURCHASE OF ELECTRIC VEHICLES			
	Number of States with Passenger Vehicles Incentives	Number of States with Medium/Heavy-Duty Trucks Incentives	Value of Incentives
Sales Tax Exemption	2	1	2.9% to 6.625 % of vehicle purchase price
Tax Credit	1	3	Passenger Vehicles: \$2,500 Trucks: \$3,500–\$100,000
Rebate/Grant	12	18*	Passenger Vehicles: \$750– \$7,500 Trucks: Varies greatly depending on truck type

SOURCE: Department of Energy Alternative Fuel Data Center.
**Almost all states have a rebate or grant program for medium and heavy duty trucks as a result of the federal Volkswagen Diesel Emissions Settlement for violating the Clean Air Act, but eligibility requirements differ widely.*

ARE THERE TAX EXPENDITURES OR PROGRAMS WITH A SIMILAR PURPOSE IN THE STATE?

The Low-Emitting Vehicles Sales and Use Tax Exemption [Section 39-26-719, C.R.S.] provides a sales and use tax exemption for the purchase, storage, or use of a new or used medium- or heavy-duty vehicle that is a qualifying alternatively fueled vehicle or a heavy-duty vehicle that meets Environmental Protection Agency's emissions standards. The exemption is also available for parts to convert a vehicle into a low-emitting vehicle. Electric trucks that qualify for exemption can also claim the Innovative Trucks Credit.

Additionally, we identified multiple state programs which are targeted towards increasing the adoption of electric vehicles, as described below:

- CHARGE AHEAD COLORADO—A grant program administered by the Colorado Energy Office and the Regional Air Quality Council, which provides public and private entities funding to install electric vehicle charging stations.
- EV FAST-CHARGING PLAZA PROGRAM—A grant program administered by the Colorado Energy Office that provides funding for the installation of multiple direct current fast charging stations, to increase access to high-speed charging for electric vehicles in areas of potential high utilization.
- VOLKSWAGEN DIESEL EMISSIONS SETTLEMENT—Colorado was awarded \$68.7 million from the \$2.7 billion settlement from Volkswagen's violations of the federal Clean Air Act, to reduce the emission of nitrogen oxides (NO_x) in the state. Colorado is using this funding to support the replacement of specific medium- and heavy-duty vehicles to alternatively fueled ones, including electric vehicles, as well as the development of electric vehicle charging stations.
- COLORADO ZERO EMISSIONS VEHICLE RULE [5 CCR 1001-24]—In 2019, the Air Quality Control Commission, a statutorily-created

commission within the Department of Public Health & Environment, passed a rule requiring vehicle manufacturers to sell an increasing percentage of zero emitting vehicles as part of their vehicle fleet sold in Colorado, starting with model year 2023. The rule is tied to California's zero emissions vehicle standards.

In addition to available state programs to increase the purchase of electric vehicles, we also identified federal tax credits and programs with a similar purpose, as follows:

- **PLUG-IN ELECTRIC DRIVE VEHICLE INCOME TAX CREDIT**—Provides an income tax credit that ranges between \$2,500 and \$7,500 for electric vehicles with a gross vehicle weight rating of less than 14,000 lbs. The credit amount depends on the capacity of the vehicle's battery, with BEVs qualifying for the full credit and some PHEVs qualifying for a lesser amount. However, the credit begins to phase out when a manufacturer sells 200,000 cumulative qualified vehicles beginning from 2010. As of June 2022, only two manufacturers have been completely phased out, Tesla and General Motors.
- **INFRASTRUCTURE INVESTMENT AND JOBS ACT**—This recently passed legislation is expected to provide Colorado with \$57 million to support the development of electric vehicle charging across the state. Overall, the Act is intended to provide \$7.5 billion over 5 years to support the development of electric vehicle charging infrastructure across the country. Of this amount, roughly \$5 billion will be distributed to states, and the remaining \$2.5 billion will be set aside for a competitive grant program among the states.
- **DIESEL EMISSION REDUCTION ACT**—Provides funding to states for diesel emission reduction projects. Funding from this program is used for the Colorado Clean Diesel Program in coordination with funds from the federal Volkswagen Diesel Emissions Settlement for the adoption of certain electric and hybrid electric vehicles.

WHAT DATA CONSTRAINTS IMPACTED OUR ABILITY TO EVALUATE THE TAX EXPENDITURES?

We did not encounter any data constraints that limited our ability to evaluate the tax expenditures.

WHAT POLICY CONSIDERATIONS DID THE EVALUATION IDENTIFY?

THE GENERAL ASSEMBLY MAY WANT TO CONSIDER AMENDING STATUTE TO ESTABLISH A STATUTORY PURPOSE AND PERFORMANCE MEASURES FOR THE INNOVATIVE CARS AND TRUCKS INCOME TAX CREDITS. Statute and the enacting legislation for the credits do not state their purpose or provide performance measures for evaluating their effectiveness. Therefore, for the purpose of this evaluation, we considered a potential purpose: to increase the use of electric cars and trucks. We identified this purpose based on the operation of the credits, and their legislative history. We also developed performance measures to assess the extent to which the credits are meeting their potential purposes. However, the General Assembly may want to clarify its intent for the credits by providing a purpose statement and corresponding performance measure(s) in statute. This would eliminate potential uncertainty regarding the credits' purpose(s) and allow our office to more definitively assess the extent to which the credits are accomplishing their intended goal(s).