

The Benefits of the Colorado Clean Car Standard: Fact Sheet



NRDC
NATURAL RESOURCES
DEFENSE COUNCIL



**SIERRA
CLUB**



**Western
Resource
Advocates.**

This fact sheet compares the environmental, public health, and economic benefits of Colorado adopting the full Colorado Clean Car Standard versus only adopting through earlier model years (MY). This is the name used in Colorado for the policy known nationally as the Advanced Clean Cars II (“ACC II”) program, which requires vehicle manufacturers to increase sales of light-duty zero-emission vehicles (ZEVs) within the state. While the full regulation would require the state to reach 100 percent ZEV sales by MY 2035, Colorado is considering adopting only through MY 2032, to reach 82 percent ZEV sales. Adopting the full regulation would result in greater environmental, public health, and economic benefits to the state. To conduct this analysis, ERM modeled the following three scenarios which varied the manufacturer compliance mechanisms as well as the electric grid, and looked at compliance ending in four different model years MY 2032 through MY 2035:

- ACC II Flex Scenario: Colorado adopts the regulation starting in MY 2027 and manufacturers use many of the compliance flexibilities offered to ease their transition to the required ZEV sales levels.
- ACC II Flex + Clean Grid Scenario: Manufacturers follow the sales trajectories in the ACC II Flex scenario, and Colorado reaches 100 percent clean generation by MY 2040.
- ACC II Full + Clean Grid Scenario: Manufacturers do not use any of the offered compliance flexibilities and Colorado also reaches 100 percent clean generation by MY 2040.

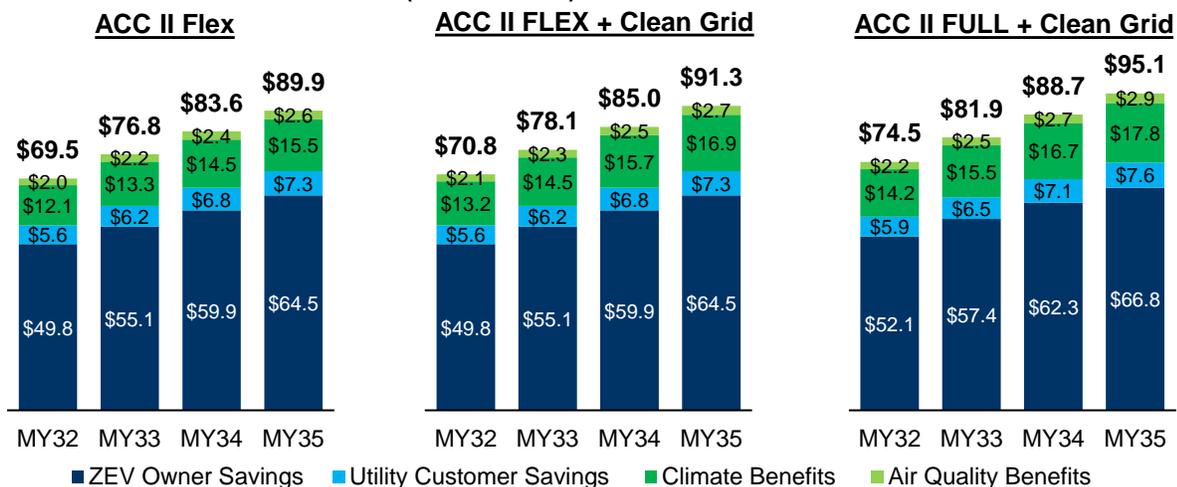
The Colorado ACC II policy scenarios were compared with a baseline “business-as-usual” (BAU) scenario in which all new light-duty vehicles (LDVs) sold in the state continue to meet existing EPA vehicle standards, and ZEV sales increase but never reach more than a third of new vehicle sales each year. Assuming the rule ends in different MYs impacts the share of zero-emission LDVs on the road over time:

	MY 2032	MY 2033	MY 2034	MY 2035
Share of vehicle sales that are ZEV, held steady after MY in which rule is assumed to end	82%	88%	94%	100%
Resulting share of LDVs that are zero-emitting in 2050	78%	83%	88%	93%

Cumulative Net Societal Benefits

The net societal benefits from the modeled Colorado ACC II scenarios include the monetized value of public health and climate benefits, net cost savings for vehicle owners, and net utility costs from increased electricity demand for EV charging. If Colorado adopts the regulation through MY 2032, under the ACC II scenarios, the cumulative societal benefits by 2050 reach between \$70 and over \$74 billion. Whereas, if Colorado adopts the regulation through MY 2035, the cumulative societal benefits increase by roughly \$20 billion to reach between \$90 and \$95 billion.

Cumulative Benefits from 2027 to 2050 (2021\$ billion)



ZEV Owner Benefits

For all the modeled ACC II scenarios, the analysis estimated annual incremental costs associated with purchase and use of light-duty ZEVs compared with baseline internal combustion engine (ICE) vehicles that operate on petroleum fuels. The average light-duty ZEV purchased in MY 2027 will cost nearly \$740 more than an ICE vehicle, but the fuel and maintenance savings outweigh the projected incremental cost of the vehicle as well as the charger costs, resulting in nearly \$14,250 in lifetime savings. Additionally, for MY 2030 and beyond, the average ZEV purchase price is projected to be lower than the average ICE vehicle, such that the ZEV owners will realize savings of up to \$16,600 over the lifetime of the vehicle. As shown in the dark blue bars in the figure above, cumulative net ownership cost savings for Colorado ZEV owners vary by modeled ACC II scenario and accumulate the most when the rule ends in MY 2035:

	MY 2032	MY 2033	MY 2034	MY 2035
<i>Cumulative ZEV owner savings</i>	\$49.8 - \$52.1	\$55.1 - \$57.4	\$59.9 - \$62.3	\$64.5 - \$66.8
<i>MY 2027 to MY 2050</i>	billion	billion	billion	billion

Environment and Air Quality Benefits

The modeled ACC II scenarios produce significant reductions in NOx, PM, and GHG emissions from the LDV fleet, even after accounting for the emissions from producing the electricity needed to power ZEVs. Adopting the regulation through different MYs in Colorado impacts the emissions savings benefits:

- Through MY 2032: NOx, PM, and GHG emissions approach nearly 80 percent reductions by 2050. Cumulative emissions reductions from 2027 to 2050 across scenarios range between 43,800 and 54,500 metric tons (MT) of NOx, 4,000 and 4,900 MT of PM2.5, and 150 and 177 million MT of CO2e compared to the baseline.
- Through MY 2033: NOx, PM, and GHG emissions exceed 80 percent reductions by 2050. Cumulative emissions reductions from 2027 to 2050 across scenarios range between 49,300 and 60,400 MT of NOx, 4,500 and 5,300 MT of PM2.5, and 165 and 193 million MT of CO2e compared to the baseline.
- Through MY 2034: NOx, PM, and GHG emissions approach nearly 90 percent reductions by 2050. Cumulative emissions reductions from 2027 to 2050 across scenarios range between 54,400 and 65,800 MT of NOx, 4,900 and 5,800 MT of PM2.5, and 179 and 208 million MT of CO2e compared to the baseline.
- Through MY 2035: NOx, PM, and GHG emissions exceed 90 percent reductions by 2050. Cumulative emissions reductions from 2027 to 2050 across scenarios range between 59,000 and 70,800 MT of NOx, 5,300 and 6,200 MT of PM2.5, and 191 and 221 million MT of CO2e compared to the baseline.

Public Health Benefits

NOx and PM reductions will improve air quality resulting in public health benefits from reduced mortality and hospital visits. The following table provides additional details including the monetized value of the reduced mortality and hospital visits.

<i>Health Metric</i>	MY 2032			MY 2033			MY 2034			MY 2035		
	Flex	Flex + Clean Grid	Full + Clean Grid	Flex	Flex + Clean Grid	Full + Clean Grid	Flex	Flex + Clean Grid	Full + Clean Grid	Flex	Flex + Clean Grid	Full + Clean Grid
<i>Avoided Premature Deaths</i>	163	170	182	182	190	201	199	208	219	216	224	236
<i>Avoided Hospital Visits</i>	154	162	173	172	181	192	189	198	209	205	214	225
<i>Avoided Minor Cases</i>	99,443	104,943	112,343	111,506	117,324	124,725	122,657	128,769	136,170	132,900	139,280	146,680
<i>Monetized Value, 2021\$ (billions)</i>	\$2.0	\$2.1	\$2.2	\$2.2	\$2.3	\$2.5	\$2.4	\$2.5	\$2.7	\$2.6	\$2.7	\$2.9

Full Report Information

The full report, including the corresponding technical document that provides additional details of the assumptions used, is available at <https://www.erm.com/advanced-clean-cars-ii-analysis-natural-resources-defense-council-sierra-club/>.