[Canada](https://en.wikipedia.org/wiki/Canada" \o "Canada) is a country in the northern part of [North America](https://en.wikipedia.org/wiki/North_America). Canada is the world's [tenth-largest economy](https://en.wikipedia.org/wiki/List_of_countries_by_GDP_(nominal)) as of 2016, with a [nominal GDP](https://en.wikipedia.org/wiki/Nominal_GDP)of approximately US$1.52 trillion.[[1]](https://en.wikipedia.org/wiki/List_of_companies_of_Canada#cite_note-GDP_IMF-1) It is a member of the Organisation for Economic Co-operation and Development (OECD) and the Group of Eight (G8), and is one of the world's top ten [trading nations](https://en.wikipedia.org/wiki/Trading_nation), with a highly [globalized](https://en.wikipedia.org/wiki/Globalization) economy.[[2]](https://en.wikipedia.org/wiki/List_of_companies_of_Canada#cite_note-2)[[3]](https://en.wikipedia.org/wiki/List_of_companies_of_Canada#cite_note-3) Canada is a [mixed economy](https://en.wikipedia.org/wiki/Mixed_economy), ranking above the US and most western European nations on [The Heritage Foundation](https://en.wikipedia.org/wiki/The_Heritage_Foundation)'s index of economic freedom,[[4]](https://en.wikipedia.org/wiki/List_of_companies_of_Canada#cite_note-4) and experiencing a relatively low level of [income disparity](https://en.wikipedia.org/wiki/Economic_inequality).[[5]](https://en.wikipedia.org/wiki/List_of_companies_of_Canada#cite_note-5) The country's average household [disposable income](https://en.wikipedia.org/wiki/Disposable_income) per capita is over US$23,900, higher than the OECD average.[[6]](https://en.wikipedia.org/wiki/List_of_companies_of_Canada#cite_note-OECDBLI-6)

Furthermore, the [Toronto Stock Exchange](https://en.wikipedia.org/wiki/Toronto_Stock_Exchange) is the seventh-largest [stock exchange](https://en.wikipedia.org/wiki/Stock_exchange) in the world by [market capitalization](https://en.wikipedia.org/wiki/Market_capitalization), listing over 1,500 companies with a combined market capitalization of over US$2 trillion as of 2015.[7]

U.S. Requirements – Federal and California Emission Standards. The federal Clean Air Act imposes stringent limits on the amount of regulated pollutants that lawfully may be emitted by new vehicles and engines produced for sale in the United States. Pursuant to the Clean Air Act, California may establish its own vehicle emission standards, which can then be adopted by other states. Both the U.S. Environmental Protection Agency (“EPA”) and the California Air Resources Board (“CARB”) have established tailpipe and evaporative emissions standards for light and medium duty vehicles that become increasingly stringent through the 2025 model year. Thirteen states, primarily located in the Northeast and Northwest, have adopted the California standards. Compliance with both the federal and California standards could be challenging.

Both federal and California regulations require motor vehicles to be equipped with on-board diagnostic (“OBD”) systems that monitor emission-related systems and components. As OBD requirements become more complex and challenging over time, they could lead to increased vehicle recalls and warranty costs. Compliance with automobile emission standards depends in part on the widespread availability of high-quality and consistent automotive fuels that the vehicles were designed to use. Fuel variables that can affect vehicle emissions include ethanol content, octane ratings, and the use of metallic-based fuel additives, among other things. Legislative, regulatory, and judicial developments related to fuel quality at both the national and state levels could affect vehicle manufacturers’ warranty costs as well as their ability to comply with vehicle emission standards.

The California vehicle emissions program also includes requirements for manufacturers to produce and deliver for sale zero-emission vehicles (“ZEVs”). The current ZEV regulations mandate substantial annual increases in the production and sale of battery-electric, fuel cell, and plug-in hybrid vehicles through the 2025 model year. By the 2025 model year, approximately 15% of a manufacturer’s total California sales volume will need to be made up of such vehicles. Compliance with ZEV rules could have a substantial adverse effect on our sales volumes and profits. We are concerned that the market and infrastructure in California may not support the large volume of advanced-technology vehicles that manufacturers will be required to produce, especially if gasoline prices remain relatively low. We also are concerned about enforcement of the ZEV mandate in other states that have adopted California’s ZEV program, where the existence of a market for such vehicles is even less certain. European Requirements. European Union (“EU”) directives and related legislation limit the amount of regulated pollutants that may be emitted by new motor vehicles and engines sold in the EU. Stringent new Stage 6 emission standards took effect for vehicle registrations starting in September 2014, and a second phase introduced a new laboratory test cycle for CO2 and emissions in September 2017. These standards drive the need for additional diesel exhaust after-treatment, which adds cost to, and potentially impacts, the diesel CO2 advantage. The mandatory Real Driving Emission (“RDE”) rules require manufacturers to conduct on-road emission tests using portable emission analyzers. These on-road emission tests complement the laboratory-based tests. In September 2017, manufacturers began to reduce the divergence between the regulatory limit that is tested in laboratory conditions and the values of RDE tests (“conformity factors”). The costs associated with conducting the RDE tests and complying with the conformity factors are significant. A second step for RDEs to further reduce the conformity factors becomes mandatory for new vehicle type approvals by authorities starting in January 2020. Europe is in the process of finalizing the RDE in-use surveillance rules with proposals to allow third parties to conduct testing and to define a process to challenge the product compliance with authorities. The WVTA (Whole Vehicle Type Approval) Regulations are being adapted to cover increased market surveillance, and the EU Commission announced that in 2018 it will begin to discuss air quality modeling scenarios for the next steps of emission standards post Stage 6.

There is an increasing trend of city access restrictions for internal combustion engine powered vehicles, in particular in European cities that do not meet air quality limits. Depending on city and country, the conditions for access will vary (e.g., different emission limits or vehicle requirements), which indirectly impact residual values and sales of internal combustion powered vehicles prior to restrictions being agreed. There might also be a need to retrofit emission aftertreatment of vehicles. There are also discussions in several European countries to ban the registration of internal combustion powered vehicles in the future.