Environmentally Friendly Automobiles

Our Approach

“The earth, the sky and nature” are Subaru’s fields of business, and we truly do value the benefits nature provides. The Subaru Group is committed to increasing the environmental performance of its products and also to protecting the global environment throughout the life cycle of its products, from the mining of raw materials through to the manufacturing, transportation, use, and disposal of its products.

Medium- to Long-term Targets (Long-term Visions and Milestones)

To contribute to the creation of a carbon-free society, the Subaru Group released long-term goals related to vehicles (long-term visions) and complementary medium-term goals (milestones) in January 2020.

Following the adoption of the document urging each country to voluntarily raise their CO2 emission reduction targets at COP25 held in December 2019, we set our own medium- to long-term targets for 2030 and 2050, with an eye to contributing to the achievement of the non-binding 1.5-degree target set in the Paris Agreement.

- On the well-to-wheel basis, we will pursue our goal of reducing the average CO2 emissions from new passenger cars by at least 90% by 2050, compared with 2010.
- In the early 2030’s, all commercial SUBARU cars will be equipped with electric powertrain technology.
- By 2030, we will pursue our goal of increasing the ratio of electric vehicles (EV) and hybrid cars to at least up to 40% of the gross number of vehicles sold globally.

SUBARU will accelerate the development of fundamental technologies for EVs and hybrid cars with support from alliance partners and continue offering products accentuating SUBARU’s distinctions even in the emerging electric age.

Contribution to the creation of a carbon-free society through products from Subaru’s point of view

Global Environment Preservation

Companies are required to contribute to the achievement of a decarbonized society

Year 2050

On the well-to-wheel basis, we will pursue our goal of reducing the average CO2 emissions from new passenger cars by at least 90% by 2050, compared with 2010.

Year 2030

By 2030, we will pursue our goal of increasing the ratio of electric vehicles (EV) and hybrid cars to at least up to 40% of the gross number of vehicles sold globally.

In the early 2030’s, all commercial SUBARU cars will be equipped with electric powertrain technology.

*1 Well-to-Wheel: Approach to calculate CO₂ emissions including the emissions produced by the generation of electricity to be used by EVs and other vehicles.
*2 Reduce total CO₂ emissions calculated based on the fuel efficiency (notified value) of all Subaru automobiles sold across the world by 90% or more relative to the 2010 levels in 2050. Changes in the sales quantity due to changes in the market environment shall be taken into consideration, while minor changes in running distance shall not.
*3 Excluding the models supplied by OEMs.
*4 Refers to the technology used to foster the use of electricity for EVs, HVs, and others.
**Initiatives**

**Efforts to Reduce CO₂ Emissions for New Models**

Subaru believes that finding ways to improve fuel efficiency is a key to reducing the amount of CO₂ emitted by automobiles. While further improving the fuel efficiency of our gasoline engine vehicles, we will strive to reduce CO₂ emissions produced by our new models by expanding our range of electric vehicles (EVs) and developing more EVs in anticipation of the enforcement of more stringent fuel efficiency regulations in various countries.

**Higher Fuel Efficiency**

There is still large demand for conventional gasoline-powered vehicles from customers. In fact, HVs are made by combining gasoline engines with electrification technology, and engines need to be further advanced to improve fuel efficiency. The new Outback/Legacy, which we released in the United States in 2019, is equipped with the newly developed 2.5-liter direct injection engine, which is combined with the improved continuously variable transmission (CVT) to provide higher fuel efficiency. Moreover, for the 2020 Forester and Ascent models targeted at the North American market, we are continuing to provide the top-level fuel efficiency in the SUV class.

**Electric Vehicles—HVVs, Plug-in Hybrid Vehicles (PHVs), Strong Hybrid Electric Vehicles (SHEVs), and Other Electromotive Vehicles (xEVs)**

Subaru will expand its lineup of models equipped with the e-BOXER* power unit, which was developed by combining a horizontally opposed engine with electrification technology. We will also put on sale a unique plug-in hybrid vehicle developed by using the HV know-how possessed by Toyota Motor Corporation, and will develop a strong hybrid vehicle that provides both SUBARU-ness and high environmental performance in the 2020s. Also, we will equip gasoline-powered vehicles with a range of electrification technologies to release xEVs with higher fuel efficiency. Subaru will expand the lineup of these electromotive vehicles in a planned manner with an eye to reducing CO₂ emissions from new models.

* Generic term used for “horizontally opposed engine + electrification technology,” which offers the unique driving pleasure of Subaru while being environmentally friendly.

**Electric Vehicles (EVs)**

In June 2019, Subaru announced that it had reached an agreement with Toyota to jointly develop a platform for medium- to large-sized electric passenger vehicles as well as an electric SUV in the C-Segment class as its next step for remaining competitive in the coming age of electrification. By bringing together the technological strengths of two companies, including the electrification technology for which Toyota is fostering partnerships and the all-wheel drive (AWD) technology long accumulated by Subaru, the two will take on the challenge of making an attractive EV and releasing it in the first half of the 2020s.

We at Subaru will "develop and deliver products to meet societal needs and contribute to the environment through advanced technologies," thereby contributing to the protection of the global environment. We will continue to develop EVs and expand our EV lineup, giving consideration to practical functions and customer preferences. We will thereby gradually increase the rate of environmentally friendly automobiles among our products for each market.

Reducing CO₂ emissions with electrification technologies while further accentuating “SUBARU-ness” in the environmental era

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<td><strong>EV</strong></td>
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<td><strong>Engine Vehicle</strong></td>
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* TOYOTA Hybrid System

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New 2.5-liter direct injection engine
Life Cycle Assessment
Subaru carries out LCA* of its automobiles to reduce their environmental impact throughout their life cycle (from the mining of materials to the manufacture, transportation, use, and disposal of the automobiles).

* Life cycle assessment (LCA) is a method to evaluate the environmental performance of a product or service throughout its life cycle.

Cleaner Exhaust Gas
To achieve and maintain clean air across the globe, Subaru is developing technologies for cleaner exhaust gas, targeting not only conventional air pollutants such as hydrocarbon compounds and nitrogen oxides but also particulate matter, which is feared to have serious impacts on human health.

For our products, we are expanding our range of models that meet the latest environmental standards adopted by each country.

- Japan: 2018 low emissions standards
- US: State of California's SULEV standards
- Europe: Euro 6 emission standards (final stage)
- China: China 6 emission standards

We will develop and propose reasonable products for customers based on the results of research conducted to identify the optimal specifications in each country, including research on the components of exhaust gas that will be regulated in the future.

To this end, we are designing materials on an atomic level to improve the performance of the catalyst, which plays a major role in producing cleaner exhaust gas, while also reducing the use of precious metal.

Reducing Environmentally Hazardous Substances
Subaru is also actively working on reducing the use of environmentally hazardous substances in automobiles.

As for lead, mercury, hexavalent chromium, and cadmium, we achieved the environmentally hazardous substance reduction target set by the Japan Automobile Manufacturers Association, Inc. (JAMA) for all new models released in and after 2008.

In order to ensure compliance with the REACH regulation, ELV Directive, Chemical Substance Control Law and other regulations enforced across the world, we are further reducing the use of lead and replacing phthalic acid-based plasticizer and other hazardous chemical substances with alternatives.

Reducing VOCs*1 in Vehicle Interiors
Subaru is reviewing the components and adhesive agents used in vehicle interiors in order to reduce the use of volatile organic compounds (VOCs)*1.

For the Legacy, Levorg, Impreza, Forester, and SUBARU BRZ, we achieved the voluntary target set by the JAMA*2 by reducing the concentration of the 13 substances defined by the Japanese Ministry of Health, Labour and Welfare to levels below the indoor concentration guideline values. We will continue our efforts to reduce the levels of VOCs to make the in-vehicle environment even more comfortable.

*1 Organic compounds that easily volatilize at room temperature, such as formaldehyde and toluene, which are said to cause nose and throat irritation.

*2 Voluntary target set by the JAMA in its "Voluntary Approach in Reducing Cabin VOC Concentration Levels," which was announced with the intention of reducing the in-vehicle concentrations of the 13 substances designated by the Ministry of Health, Labour and Welfare to levels equivalent to or lower than the values set in the guidelines, for new models produced and sold in Japan in and after FYE2008.

Utilizing Recycled Resins
To contribute to realizing a resource recycling society and a low carbon society, Subaru is working to develop technologies to utilize recycled resins and biomass materials.