

POWERTRAIN SYSTEMS

Balancing the joy of life with vehicles with superior environmental performance: Providing solutions that help overcome this seemingly contradictory task

We will reduce the environmental burden of vehicles to the greatest extent possible and respond to the diversification of fuel and various environmental regulations, which are becoming stricter by the year. We will also work to supply high-quality systems and components. By doing so, we will strive to create and deliver new value in order to contribute to society as a whole.

Relevant
SDGs



Hisashi Iida
Head of Business Group

Business Strengths

R&D Capabilities That Have Led the Evolution of Powertrains

DENSO has mass-produced a number of world-first products, such as common rail systems and a product that directly injects fuel in diesel internal combustion engines, while pursuing greater environmental performance in vehicles. We will apply our core technologies and development capabilities to increase the options in relation to carbon-neutral powertrains, such as hydrogen and biofuel engines.

Highly Reliable *Monozukuri* Technologies That Enable Cars to Run Safely

To enable cars to run well, DENSO has refined its highly reliable *Monozukuri* technologies, which are integrated from the stages of highly complex and precise processing at the micron-unit level, technologies for high-speed assembly, and materials preparation through to the stages of molding and sintering. We will further enhance such technologies by using our long-standing skills and *Monozukuri* expertise in combination with robots, AI, digital technologies, and other leading-edge technologies.

Personnel, Masters of Powertrains, Form Organically Coordinating Organizational Capabilities

In working with automakers on the creation of vehicles that can satisfy tough environmental regulations and withstand harsh operating environments, we have developed a varied range of professionals, each of whom has expertise in particular elemental technologies or technical skills and works in a team of professionals focused on vehicle specifications. In other words, we have advanced organizational capabilities that allow us to leverage specializations in all areas, from components through to systems.

Business Strategy

The Powertrain Systems Business has helped the spread of mobility by pursuing the simultaneous realization of lower environmental impact and convenience. Through these efforts, we have acquired additional technologies and skills. Moreover, meeting the needs of markets and customers has honed the capabilities of our personnel and organization. We have a responsibility to utilize these technologies and skills and thereby continue contributing to the realization of a sustainable mobility society. With a view to helping achieve a sustainable future while ensuring that all our personnel can continue working with cheerfulness, pride, and vitality, in fiscal 2025 we will continue efforts to de-emphasize and discontinue internal combustion engine products throughout supply chains and to commercialize new energy businesses.

Business Portfolio Transformation	<p>As the internal combustion engine market enters a period of maturity and contraction, the Powertrain Systems Business Group will transform its business portfolio. In this way, we will establish a profitable structure that is not premised on rising production volume and enables continued earnings even during a phase of declining production. At the same time, the business group has a responsibility to pass on the baton by shifting the freed-up management resources—personnel, products, and funding—to growth fields.</p> <p>We can only achieve business portfolio reweighting in partnership with customers, suppliers, and a wide range of other stakeholders. It is important to establish a consensus before initiating activities and to design procedures and conduct painstaking management that incorporates the rigorous hedging of potential risks so that in these partnerships both parties can work together without undue pressure on their resources. With this in mind, we are proceeding with activities while engaging in careful dialogue with stakeholders from as early a stage as possible. Our approach to business portfolio reweighting is designed to be optimal for customers, suppliers, and the companies that assume our businesses. We define this approach together with the development of personnel and organizations that enable the reweighting as “DENSO-style de-emphasis and discontinuation of internal combustion engine products.” We will continue our activities with a view to the completion of reweighting.</p>
Realization of Carbon Neutrality and the Creation of New Value	<p>Hydrogen is an important energy source for the realization of a carbon-neutral society. Moreover, hopes are very high in relation to the role that hydrogen will play in the creation of new industries. DENSO aims to utilize its existing powertrain technologies (system construction and ceramic-related technologies) to both help create a hydrogen society and achieve business growth in the system construction field, the peripheral equipment field, and various other fields in partnership with Toyota Motor Corporation, which is a leader in the use of hydrogen in mobility.</p>

Business Analysis Q&A

Q: What is the future strategy for the powertrain systems business as the internal combustion engine business contracts? Also, what will the role of the internal combustion engine business be in the trend toward carbon neutrality?

A: Amid heightening environmental awareness, providing power sources with low environmental impact is a social issue regardless of the region. In the United States, Europe, and China, the trend toward vehicle electrification is continuing. However, the rate of progress varies greatly depending on the region. Engines powered by hydrogen, biofuels, e-fuel, and other fuels with high

energy efficiency and low environmental impact are also attracting increasing attention.

In relation to internal combustion engine products, DENSO has developed advanced technologies that are highly regarded by the market. For example, we boast a 30% share of the market for internal combustion engine-related components for gasoline vehicles. We will leverage the aforementioned technologies to develop engines powered by fuels that have small environmental impacts, thereby supporting the industry as a whole as it proceeds through a transitional phase and achieving global environmental initiatives.

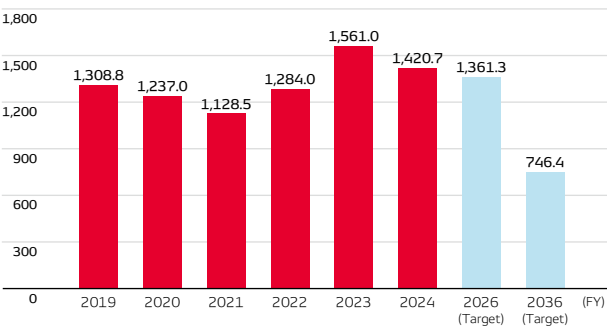
Objectives and Results of Strategies for Green and Peace of Mind

Objective: Promote efforts to de-emphasize and discontinue internal combustion engine products together with customers, suppliers, and other industry participants
Results: Based on regulatory and market trends, held discussions with customers and suppliers; reached a basic agreement on the future direction; began preparing scenarios; rapidly commenced efforts; ensured that customers and DENSO as well as suppliers and DENSO were in step with each other; and carefully advanced activities one company at a time
Objective: Achieve commercialization in the new energy field through alliances with related parties
Results: Through discussions with industry stakeholders, agreed on moving forward with various projects; in fiscal 2025, shifting to implementation by realizing commercialization while advancing implementation demonstration activities

Reassignment of Personnel to Maximize Created Value

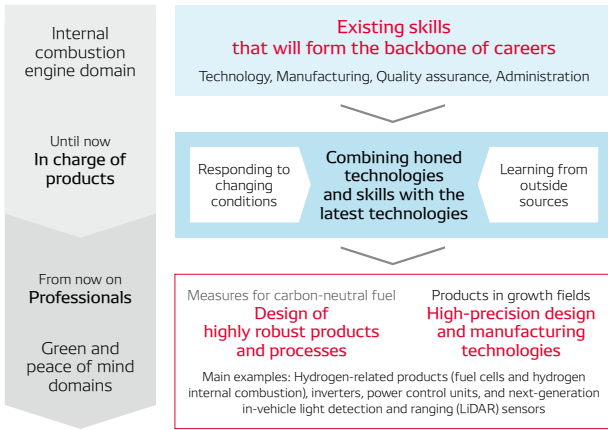
In the process of contributing to the spread of vehicles by reducing environmental impact while offering convenience, we have taken on many challenges and made many mistakes, acquired numerous technologies and skills, and developed the abilities of our personnel and organization through interactions with the market and customers. By integrating the ability to construct three-pronged systems that are realized through highly robust products and electronic control and our *Monozukuri* capabilities that leverage high-precision design and manufacturing technologies with digital skills, we will transform our human resource portfolio so that it drives expansion in growth fields, bolster our organizational capabilities, and develop professionals that can realize our management philosophy.

Revenue of Internal Combustion Engine Products Designated to Be De-Emphasized or Discontinued* (Billions of yen)



* Powertrain Systems Business Group overall

Contributions of Personnel to Our Future



Resolving Social Issues through Our Businesses

Industry-wide Activities to De-Emphasize and Discontinue Internal Combustion Engine Products

We are optimizing our business portfolio to maximize green value and peace of mind value. At the same time, we have an important responsibility to continue delivering safe and reliable products to those in regions where internal combustion engines will still be needed for some time to come. If individual companies continue operating based only on their current formats, they will eventually become smaller and weaker, which could make it difficult for them to keep providing services. To avoid such a situation, ensure a long-term stable supply of internal combustion engine products, maintain competitiveness, and help accelerate

commercialization in growth areas, we are de-emphasizing and discontinuing internal combustion engine products. However, we cannot achieve this on our own. Therefore, we are collaborating with automakers and suppliers to reorganize businesses with the aim of establishing a structure that can continue meeting the market's supply needs even as production volume decreases. These collaborations include such activities as the integration of specifications, the replacement of old-model products, and the transfer of businesses. In fiscal 2025, we will continue these collaborative activities and move toward the realization of a more sustainable industry structure.