

# Diversity in Carbon Neutrality

Takao Aiba

Japan Automobile Manufacturers Association (JAMA)  
Chair, the International Climate Change Policy Expert Group

# Who We Are?

- JAMA (Japan Automobile Manufacturers Association, Inc.) is a non-profit industry association comprising Japan's 14 manufacturers of passenger cars, trucks, buses and motorcycles.

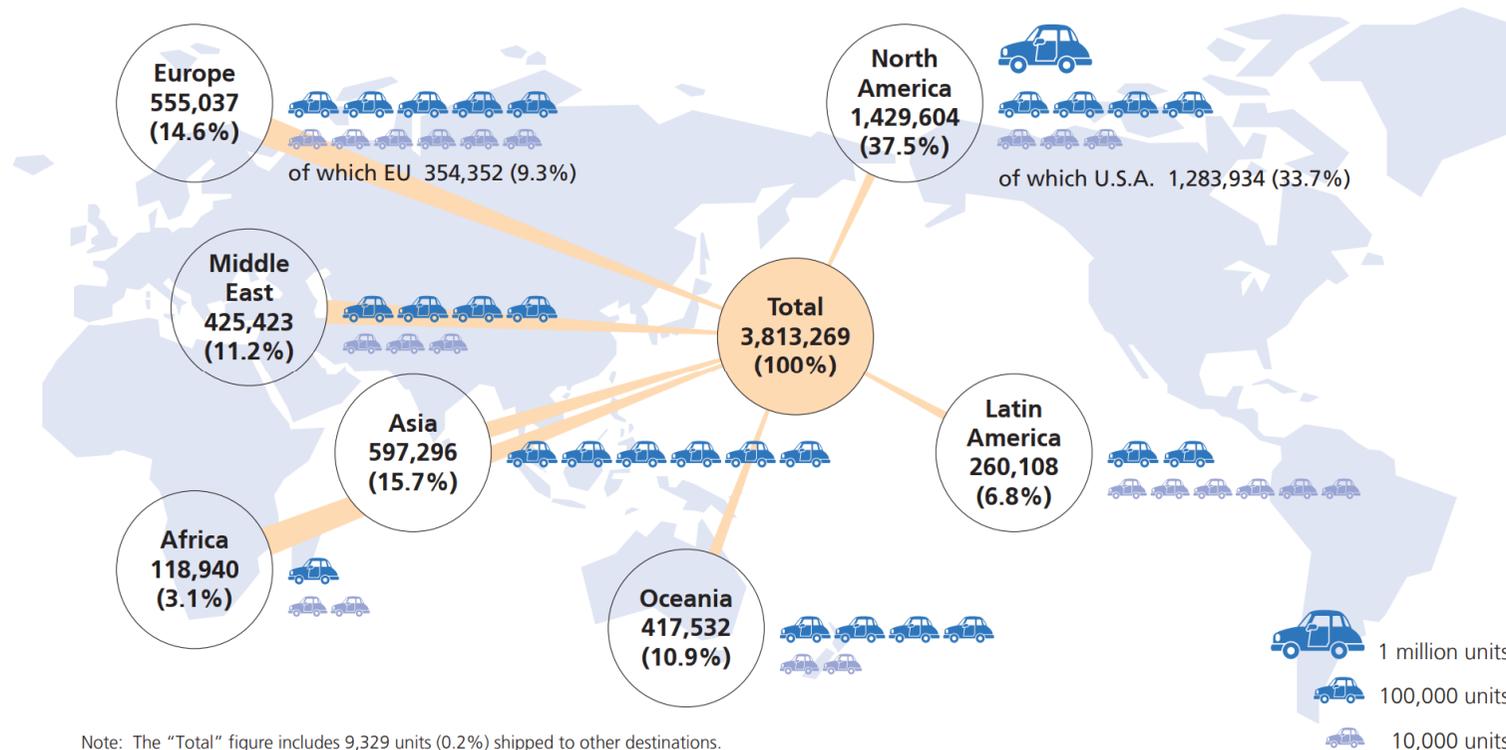
<b>Established</b>	April 3, 1967	
<b>Our Objective</b>	<ul style="list-style-type: none"> <li>• To promote the sound development of the automobile industry and contribute to social and economic welfare.</li> </ul>	
<b>Our Activities</b>	<ul style="list-style-type: none"> <li>• Conducts studies and surveys related to automobile production, distribution, trade and use.</li> <li>• Assists in the rationalization of automobile production, and helps establish policy for the development, improvement and promotion of production technology.</li> <li>• Establishes and promotes policies related to automobile trade and international exchange.</li> <li>• Carries out other activities involved in meeting its organizational objectives.</li> </ul>	
<b>Member Companies</b>	<ul style="list-style-type: none"> <li>• <a href="#">Daihatsu Motor Co., Ltd.</a></li> <li>• <a href="#">Honda Motor Co., Ltd.</a></li> <li>• <a href="#">Kawasaki Motors, Ltd.</a></li> <li>• <a href="#">Mitsubishi Motors Corporation</a></li> <li>• <a href="#">Nissan Motor Co., Ltd.</a></li> <li>• <a href="#">Suzuki Motor Corporation</a></li> <li>• <a href="#">UD Trucks Corporation</a></li> </ul>	<ul style="list-style-type: none"> <li>• <a href="#">Hino Motors, Ltd.</a></li> <li>• <a href="#">Isuzu Motors Limited</a></li> <li>• <a href="#">Mazda Motor Corporation</a></li> <li>• <a href="#">Mitsubishi Fuso Truck &amp; Bus Corporation</a></li> <li>• <a href="#">Subaru Corporation</a></li> <li>• <a href="#">Toyota Motor Corporation</a></li> <li>• <a href="#">Yamaha Motor Co., Ltd.</a></li> </ul>

# Who We Are?

Member companies **produce and export motor vehicles worldwide.**

## Motor Vehicle Exports By Destination In 2022

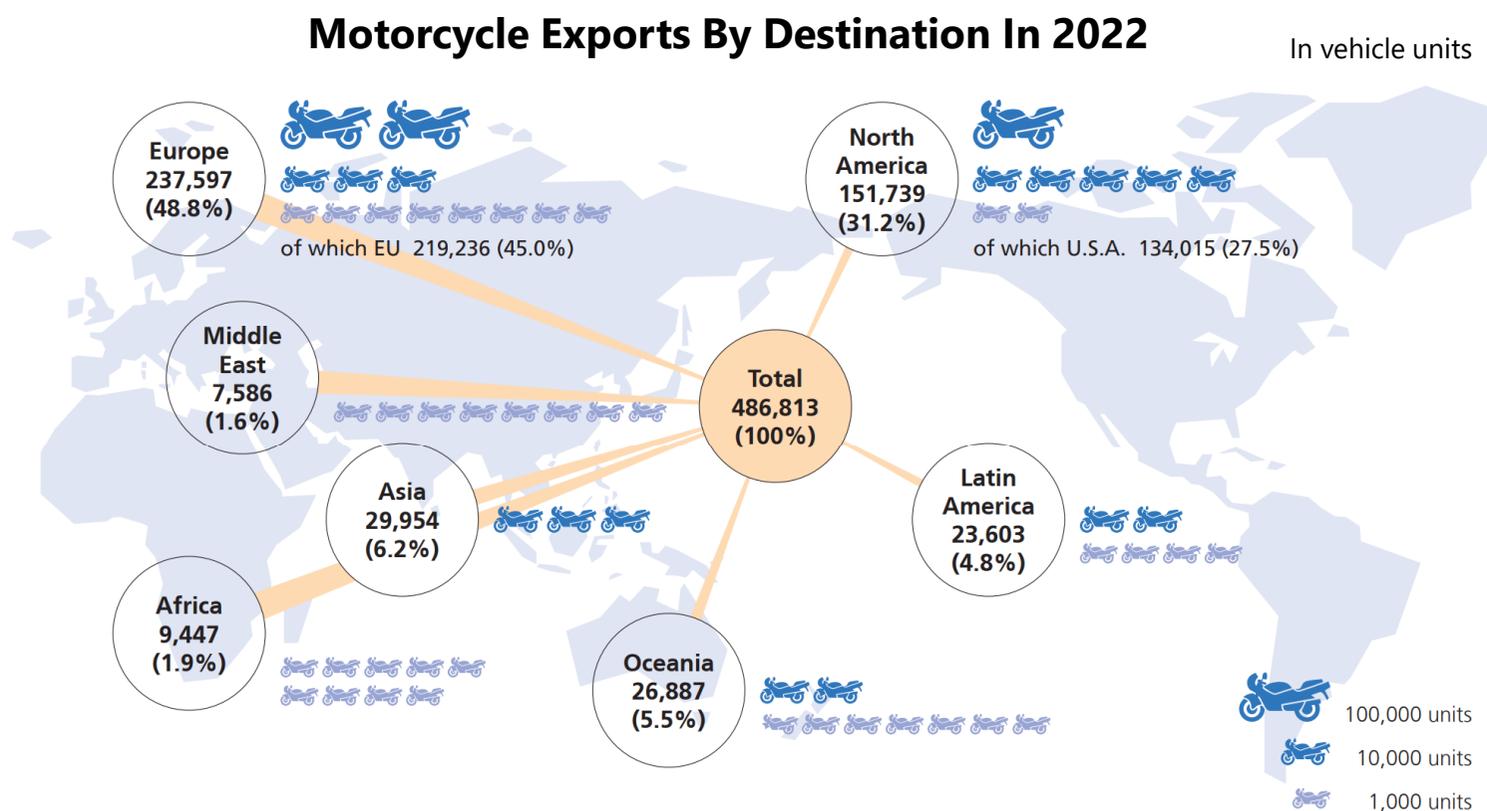
In vehicle units



Note: The "Total" figure includes 9,329 units (0.2%) shipped to other destinations.

# Who We Are?

Member companies **produce and export motorcycles worldwide.**



# Who We Are?

Member companies **produce and export vehicles worldwide.**

## Geographical Distribution of JAMA Members` Overseas Production Bases

As of May 1, 2023



# Panelists of Today's seminar

Moderator



**Prof. Jun Arima**

Graduate School of Public Policy,  
The University of Tokyo  
IPCC AR6 WG3  
CH1 "Introduction and Frame" LA

Speaker



**Prof. Suzana Kahn Ribeiro**

Federal University of Rio de Janeiro  
Coordinating Lead Author of  
IPCC AR6 WG3 CH10

Speaker



**Mr. Henry Joseph Junior**

Technical Director,  
Brazilian Association of Automotive  
Vehicle Manufacturers (ANFAVEA)

Speaker



**Ms. Mari Uenishi**

General Manager,  
Car and Life Style R&D Div.  
Daihatsu Motor CO.,LTD.

Speaker



**Mr. Takao Aiba**

Japan Automobile Manufacturers  
Association (JAMA)

# SDGs progress at the midpoint

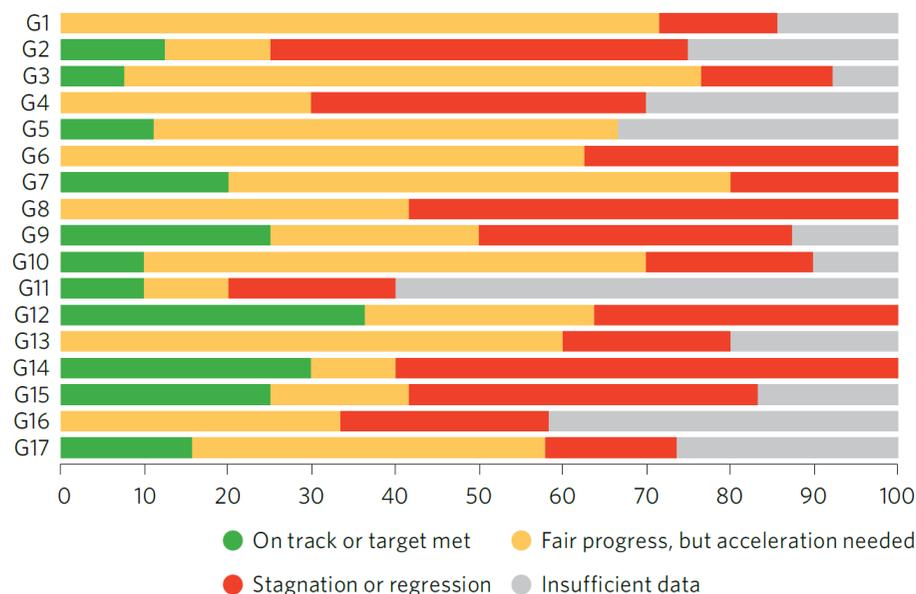
- Only 15% of the targets are **ON TRACK** at the midpoint.
- JAMA is making maximum effort toward CN with a sense of urgency.

2023

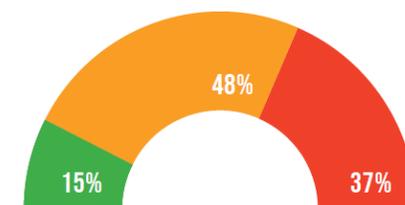
The Sustainable Development Goals Report  
Special edition



Progress assessment for the 17 Goals based on assessed targets, 2023 or latest data (percentage)



## A CONCERNING PICTURE OF SDG PROGRESS AT THE MIDPOINT:



- ON TRACK
- MODERATELY OR SEVERELY OFF TRACK
- STAGNATION OR REGRESSION

BASED ON AN ASSESSMENT OF SDG TARGETS WITH TREND DATA.

Source: United Nations

## Initiative in G7 countries

- **G7 Leaders recognized the importance** of reducing GHG emissions from the global fleet and **“the range of pathways”** for **keeping a limit of 1.5°C within reach.**

other entities through decarbonization solutions. We welcome the progress of the Industrial Decarbonization Agenda (IDA) that decided to start working on implementation of the new Global Data Collection Framework for steel production and product emissions. We reaffirm our commitment to a highly decarbonized road sector by 2030, and recognize the importance of reducing GHG emissions from the global fleet and the range of pathways to approach this goal in line with trajectories required for keeping a limit of 1.5°C within reach. We are committed to the goal of achieving net-zero emissions in the road sector by 2050. In this context, we highlight the various actions that each of us is taking to decarbonize our vehicle fleet, including such domestic policies that are designed to achieve 100 percent or the overwhelming penetration of sales of light duty vehicles (LDVs) as zero emission vehicles (ZEV) by 2035 and beyond; to achieve 100 percent electrified vehicles in new passenger car sales by 2035; to promote associated infrastructure and sustainable carbon-neutral fuels including sustainable bio- and synthetic fuels. We note the opportunities that these policies offer to contribute to a highly decarbonized road sector, including progressing towards a share of over 50 percent of zero emission LDVs sold globally by 2030. Considering the findings of the International Energy Agency (IEA)'s Energy

Source: “G7 Hiroshima Leaders’ Communiqué”, Ministry of Foreign Affairs of Japan

# Initiative of global automakers

- Global automakers **reaffirmed a need for flexibility through multiple, technology-open approaches** in order to provide practical and sustainable pathways to CN by 2050 for all nations.

## Achieving Carbon Neutrality in Road Transport by 2050: Reaffirmation by the Automobile Industry

2023/04/14

April 4, 2023

Updated: April 14, 2023

In November 2022, as global policymakers prepared to gather at the COP27 United Nations Climate Change Conference in Egypt, the International Organization of Motor Vehicle Manufacturers (OICA) released a position paper titled "Carbon Neutrality by 2050," a comprehensive framework of specific policy recommendations to support the decarbonization of road transport.

For automakers around the world, decarbonizing road transport is a shared goal to which they are committed. However, as the OICA framework emphasizes, there is a need for flexibility through **multiple, technology-open approaches** in order to provide **practical and sustainable pathways to carbon neutrality by 2050 for all nations**. To achieve carbon neutrality, measures to reduce CO<sub>2</sub> emissions from **new vehicles**, and also from **in-use vehicles**, must be pursued. To that end, it is important that technologies be advanced across a spectrum: for **zero-emission vehicles** (i.e., **battery and fuel cell electric vehicles**) which emit no direct CO<sub>2</sub>, and for internal combustion engine-equipped vehicles powered by CO<sub>2</sub>-offsetting energy such as **carbon-neutral fuels**.

Regardless of the technologies adopted, achieving decarbonization within the 2050 timeframe depends on **government and industry partnerships** and continued **investment commitments from the entire road transport ecosystem for reliable infrastructure and resilient supply chains**.

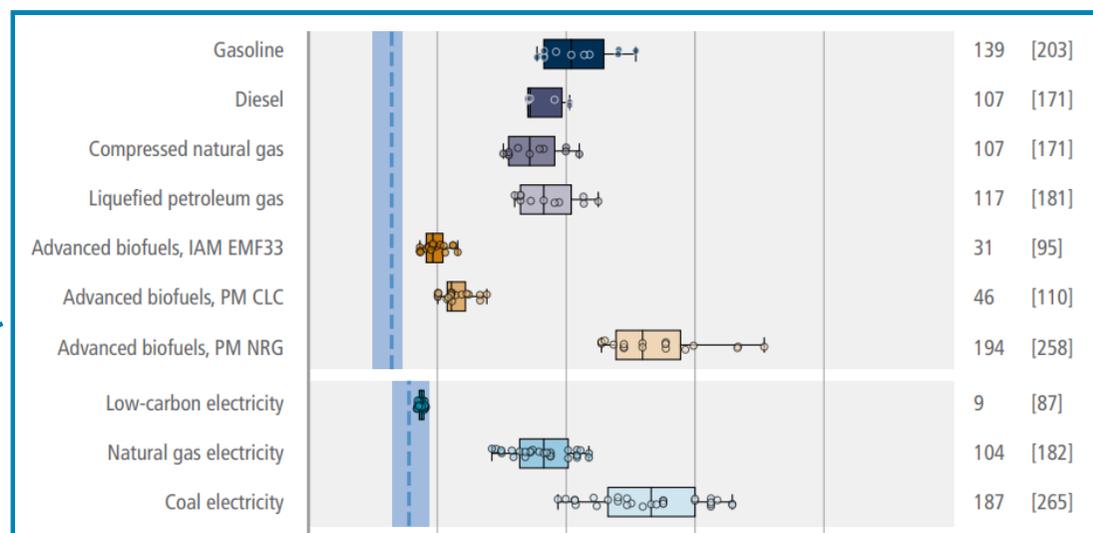
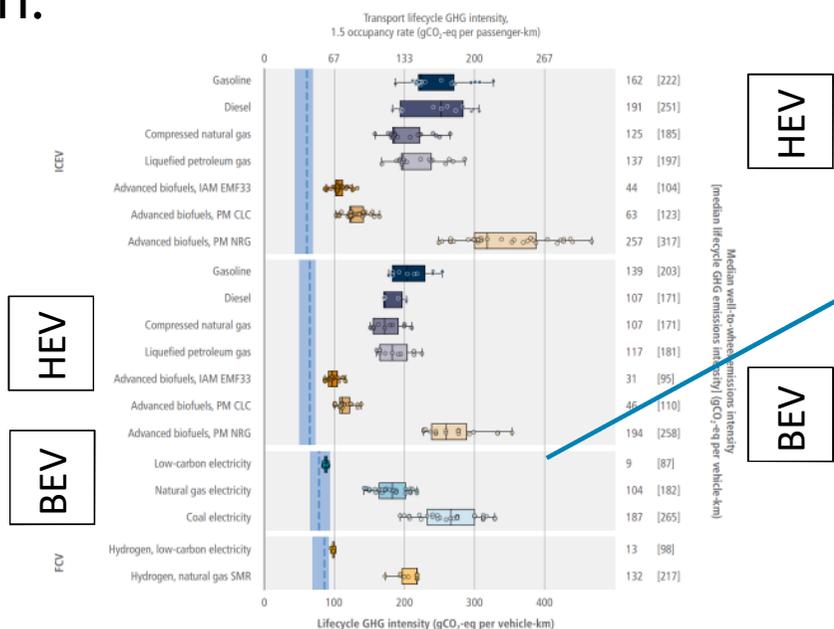
As representatives of the global automobile industry, taking into consideration the current global geopolitical and socioeconomic situation, we believe that this reaffirmation to achieve carbon neutrality in our sector by 2050 is timely.

Endorsing organizations (informal group):

European Automobile Manufacturers' Association ([ACEA](#))  
Italian Association of the Automotive Industry ([ANFIA](#))  
Alliance for Automotive Innovation ([Auto Innovators](#))  
\*Canadian Vehicle Manufacturers' Association ([CVMA](#))  
Global Automakers of Canada ([GAC](#))  
Japan Automobile Manufacturers Association ([JAMA](#))  
Filière Automobile & Mobilités ([PFA](#))  
Society of Motor Manufacturers and Traders ([SMMT](#))  
German Association of the Automotive Industry ([VDA](#))

# The scientific view

- IPCC reports that BEV with low carbon electricity has large emission reduction potential, while with high carbon electricity the potential is slim.



Source: IPCC AR6 WG3 Chapter 10 "Transport"

**It is necessary to take optimal choices depending on energy availability to reduce CO<sub>2</sub> emissions as quickly as possible and as much as possible.**

# Contents of JAMA presentation

**“UNITE. ACT. DELIVER” × field of “Production”**

**“UNITE. ACT. DELIVER” × field of “Transportation”**

**“UNITE. ACT. DELIVER” × field of “Utilization”**

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# “UNITE. ACT. DELIVER” × field of “Transportation”

- Providing a variety of vehicle/mobility solutions suitable to the region.
- Improving logistics efficiency by using “BIG DATA”.

**APPROACH**

## LOGISTICS

### 物流領域での取り組み

Reducing CO2 immediately through diverse approaches  
多様なアプローチで今すぐCO2を減らす

Automakers in Japan with logistics networks all over Japan and the world are working together toward decarbonization in the field of logistics as well.

Providing diverse mobility solutions adapted to that region and application. Creating green energy using ample regional resources. Optimizing logistical efficiency by leveraging Big Data.

Our motto is “right now” — by working on these tasks immediately, we have seen a revolution in logistics on every level from shipping lines connecting distant cities to that last mile connecting businesses to customers, producing tangible results.

We’re committed to doing what we can immediately to reduce carbon dioxide emissions in the field of logistics as well. This is just one of the variety of diverse approaches Japan is proposing toward achieving carbon neutrality.

日本の、そして世界中の物流を担う国内自動車会社が連携し、商用車・物流領域においても脱炭素の取り組みを進めています。

地域や使い方に応じた、多様なモビリティの提供。地域の豊富な資源を活用した、クリーンエネルギーの生成。ビッグデータを活用した、物流の効率化。

「今すぐ」を合言葉に、これらの取り組みを進め、離れた都市間を結ぶ幹線輸送から、店舗とお客様を結ぶラストワンマイル配送に至るまで、地域毎に実装し、具体的な成果が豊かに得られています。

商用車・物流の領域でも、今すぐできることに取り組み、CO<sub>2</sub>の排出量を著実に減らしていく。これが、日本のカーボンニュートラル実現に向けた多様なアプローチのひとつです。



# Contents of JAMA presentation

**“UNITE. ACT. DELIVER” × field of “Production”**

**“UNITE. ACT. DELIVER” × field of “Transportation”**

**“UNITE. ACT. DELIVER” × field of “Utilization”**

# “UNITE. ACT. DELIVER” × field of “Utilization”

■ Diverse options for pursuing carbon neutrality were displayed during G7 Hiroshima Summit.



# “UNITE. ACT. DELIVER” × field of “Utilization”

- **Battery Electric Vehicles are one of the key technology** toward carbon neutrality.
- **Batteries of BEVs will contribute to energy management:** constructing Distributed Energy Resources (DER) ; use as emergency power source.

APPROACH

## BATTERY ELECTRIC VEHICLES

### 電気自動車

Key technologies for building the foundation of a carbon emission-free world  
脱炭素社会の基盤をつくる大本命の技術

Electric vehicles powered by batteries will be one of the most important keys to achieving carbon neutrality without any CO<sub>2</sub> emissions.

With many major players in the industry, Japan's automakers are getting all their energy into the development of electric vehicles to broaden the range of vehicles available from not only passenger cars but also commercial vehicles, taxi cabs, and two-wheeled vehicles.

The spread of BEVs, which use lithium-ion batteries, is expected to contribute to energy management (the building autonomous distribution systems, smoothing energy consumption, and creating emergency power sources for disaster times), making it essential to the realization of a decarbonized and resilient society.

Efforts are already being made toward the reuse of these batteries, a crucial first step.

People across Japan are working to enable better energy management through the spread of a full lineup of BEVs. This is just one of the variety of diverse approaches Japan is proposing toward achieving carbon neutrality.

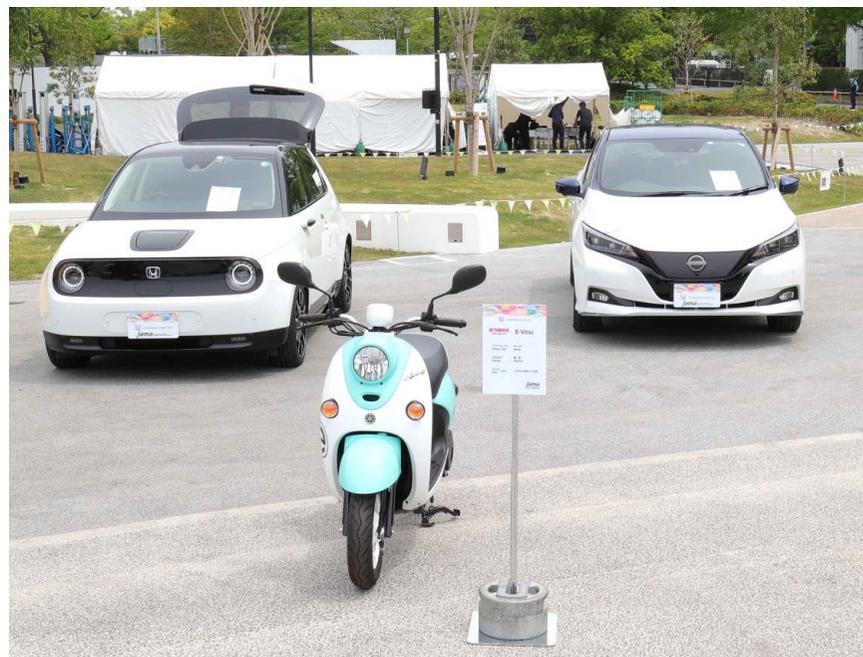
バッテリーの普及でカーボンフリー社会の実現は大きく、CO<sub>2</sub>排出を減らす重要な鍵の一つとして期待されています。

業界のプレイヤーが多数参入する中で、乗用車だけでなく、商用車、タクシー、二輪車まで、幅広い車種での開発が進んでいます。

電気自動車は蓄電池（リチウムイオン電池）を使用し、エネルギー管理（建物内でのエネルギーの分散配分、エネルギー消費の平滑化、災害時の緊急電源としての活用）に貢献することが期待されており、脱炭素社会の実現に向けた重要な取り組みです。

これらの取り組みは、蓄電池の再利用など、重要な第一歩です。

全国でBEVの普及が進むことで、エネルギー管理の向上が期待されています。これは、脱炭素社会の実現に向けた多様なアプローチの一つです。





# “UNITE. ACT. DELIVER” × field of “Utilization”

- The importance of **CO2 reduction from in-use vehicles** is indicated in G7 leaders summit.
- **Carbon Neutral Fuel** such as sustainable biofuels and synthetic fuels are expected to take on the role.

APPROACH

## CARBON NEUTRAL FUEL ( Biofuels and Synthetic Fuels )

カーボンニュートラル燃料 (バイオ燃料・合成燃料)

Contributing to decarbonizing existing ICEs  
既存の内燃機関の脱炭素化に貢献する

Vehicles powered by the feed with internal combustion engines (ICEs) will need to be decarbonized and kept on the path to reduce carbon emissions. To this, we are putting our focus in biofuels and synthetic fuels, which are neutral to global warming by their lifecycle and storage.

While these fuels do produce carbon dioxide when burned, they are still considered carbon neutral because they are made using carbon dioxide, making the net carbon dioxide added into the atmosphere zero. They have high energy density and can be stored in room temperature, making them easy to store and transport.

These fuels have attracted attention for their special attributes that make them a high energy density, neutral to global warming by their lifecycle. As such, Japan, as a world country has been working to develop these types of carbon neutral fuels for use by our society as soon as possible.

Carbon neutral fuels mean our carbon dioxide will continue to be neutral for ICEs and internal combustion engines. This is just one of the variety of other measures Japan is imposing toward achieving carbon neutrality.

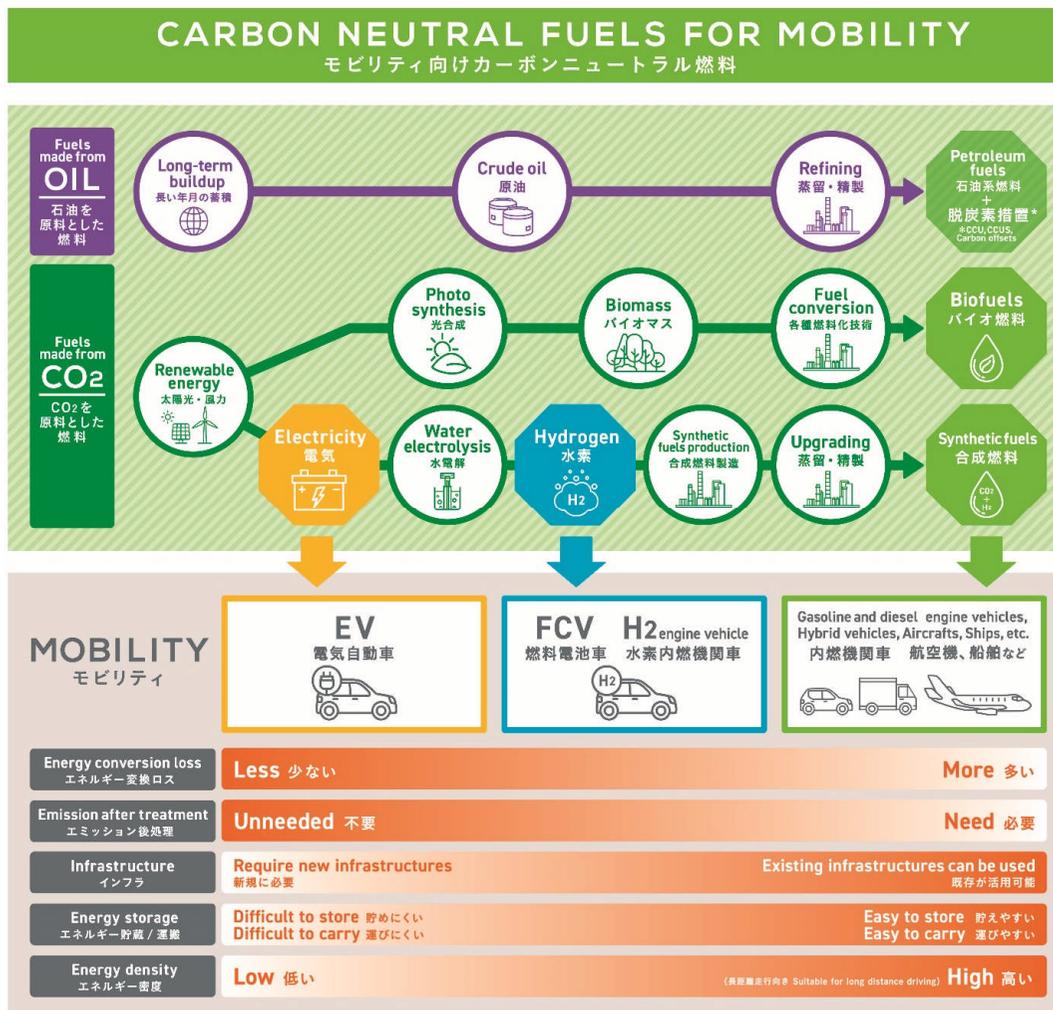
カーボンニュートラル燃料は、気候変動の緩和と持続可能な社会の実現に貢献する。バイオ燃料や合成燃料は、ライフサイクルと貯蔵においてCO2排出をゼロとする。エネルギー密度が高く、室温で貯蔵可能であり、輸送が容易である。これらの燃料は、高いエネルギー密度と、ライフサイクルを通じて気候変動に中立であるという特徴がある。日本は世界をリードする国として、これらの炭素中立燃料の開発に取り組んでいる。

これらの燃料は、燃焼時にCO2を排出するが、CO2を回収して再利用することで、大気中のCO2の増加をゼロにする。エネルギー密度が高く、室温で貯蔵可能であり、輸送が容易である。これらの燃料は、高いエネルギー密度と、ライフサイクルを通じて気候変動に中立であるという特徴がある。日本は世界をリードする国として、これらの炭素中立燃料の開発に取り組んでいる。

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# “UNITE. ACT. DELIVER” × field of “Utilization”



# “UNITE. ACT. DELIVER” × field of “Utilization”

- “KEI cars” (mini cars) have variety of vehicle model expansion.
- Expected as **resource/fuel saving option**.

APPROACH

## KEI CARS

### 軽自動車

Light, low-carbon vehicles unique to Japan  
日本独自の進化を遂げた低炭素化の立役者

Kei cars are a light class four-wheel vehicle that was developed to the narrow road conditions of Japan. They have long served as reliable transportation for everyday life and as tools for work all over the country. This Japan-grown class of vehicles is starting to make its presence in markets outside Japan, and have done much for the motorization of many countries especially in Asia.

This category is attracting attention as a resource and fuel-saving mobility option that can serve the goal that the world is working towards.

The kei car category offers a wide range including sedans, minivans, and even trucks and SUVs while still meeting the safety and environmental standards.

This is just one of the variety of diverse approaches Japan is proposing toward achieving carbon neutrality.

軽自動車は、道路の狭い日本の事情に合わせて進化してきた四輪自動車の最小規格。生活の足として、仕事の道具として、庶民から愛用されてきました。コンパクトで扱いやすい日本発の軽自動車は海外市場でも大きな存在感を醸成しており、また、アジア諸国のモータリゼーションの発展に貢献してきました。

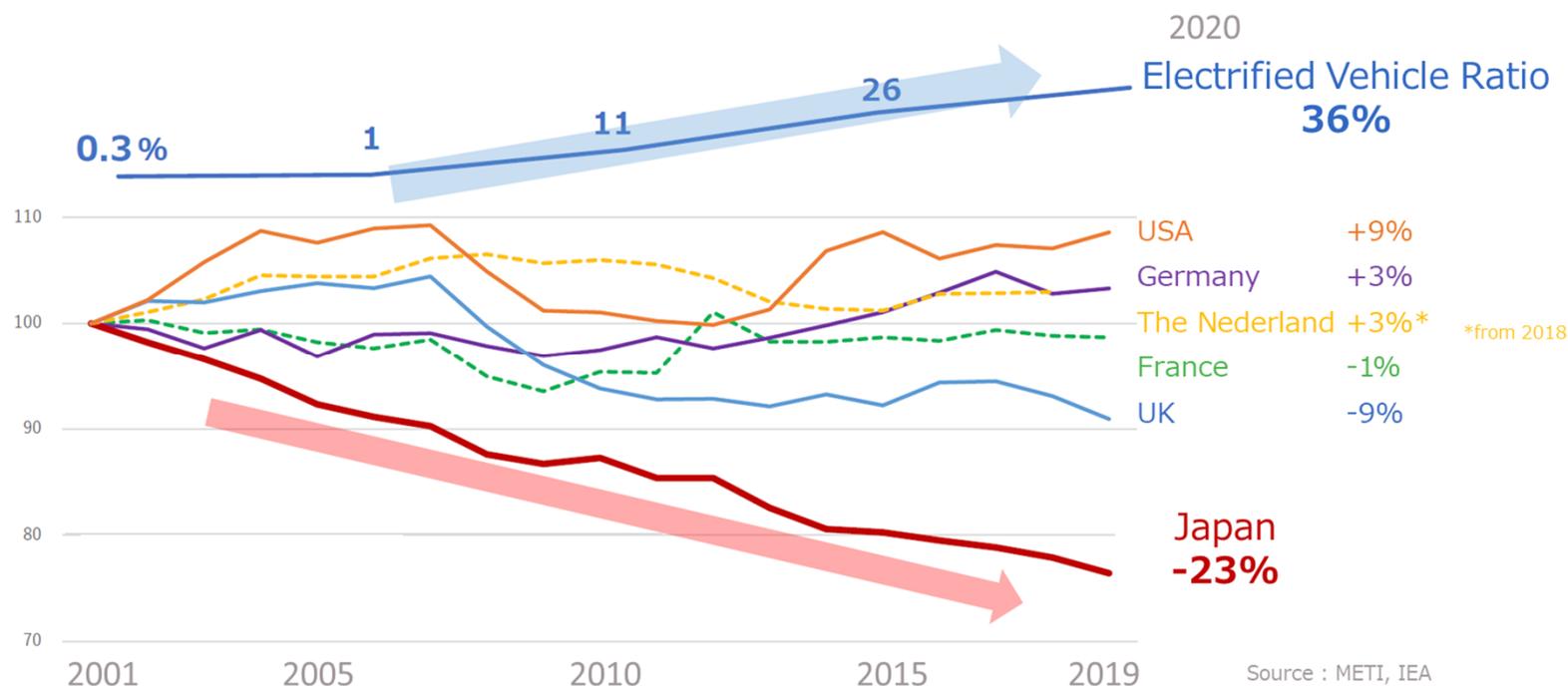
そんな軽自動車がいま、カーボンニュートラルという世界共通の目標に向け、省資源で低燃費のモビリティとして注目を集めています。

四輪車として求められる安全・環境性能を満たしながら、セダン、ワゴンだけでなく、SUVやトラックまで、幅広い車種を揃えた軽自動車。これが、日本のカーボンニュートラル実現に向けた多様なアプローチのひとつです。



# CO2 emissions from road transport sector in Japan

- Japanese auto makers has been contributing to reduction of CO2 emissions from road transport sector through its **effort to expand lineup of electrified vehicles.**



## Summary of our presentation

- ✓ **Only 15% of the SDGs` target are ON TRACK** at the midpoint.
- ✓ Importance of **“the range of pathways” or “multi-pathway approaches”** are supported by G7 countries and IPCC reports.
- ✓ **Japan has succeeded to reduce CO<sub>2</sub> through expanding lineup** of electrified vehicles.
- ✓ **Variety of options** (technologies/efforts) **to reduce CO<sub>2</sub> emissions toward carbon neutrality are steadily in the implementation phase.**
- ✓ It is necessary for **stakeholders in “Production”, “Transportation”, “Utilization” to unite and take actions right away** toward tackling climate change.