Overview of MLIT’s Vehicle Environmental Policy

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Air quality in Japan

- Air quality has been improved with the gradual enforcement of emissions regulations.
Current Status of Carbon Dioxide Emissions in Japan

- Of all CO₂ emissions in Japan, the emissions from the transport sector account for 18.5% (FY2018).
- The emissions from all motor vehicles account for 86.2% of the transport sector CO₂ emissions (15.9% of all CO₂ emissions in Japan).

### CO₂ emissions from each sector in Japan

- **Transport (Motor Vehicles, Ships etc.)**
  - Private Cars: 97 mil. t (<18.5%)
  - Private Trucks: 34 mil. t (<16.4%)
  - Commercial Trucks: 43 mil. t (<20.2%)
  - Buses: 4.1 mil. t (<1.9%)
  - Taxis: 2.5 mil. t (<1.2%)
  - Motor Cycles: 0.8 mil. t (<0.4%)
  - Ships: 10.3 mil. t (<4.9%)
  - Aircraft: 10.5 mil. t (<5.0%)
  - Railway: 8.2 mil. t (<3.9%)

- **Residential**
  - 166 mil. t (<14.6%)

- **Industry**
  - 398 mil. t (<35.0%)

- **Other Business**
  - 196 mil. t (<17.2%)

- **Other**
  - 168 mil. t (<14.8%)

### Total CO₂ Emissions

1.138 bil. t (FY2018)

Prime Minister’s general policy speech (Oct. 2020)
We aim for, by 2050, zero emission of GHG as a whole, namely, the transition to “2050 Carbon Neutral”, a decarbonized society.

Japan’s CO₂ Reduction Target

Mid-term target (26% reduction by FY2030 compared to FY2013)

GHG emissions:
To be at the level equal to 26.0% reduction compared to FY2013 (25.4% reduction compared to FY2005) by 2030 (About 1.042 billion t CO₂)

Energy source CO₂ emissions:
To be at the level equal to 24.9% reduction compared to FY2013 (24.0% reduction compared to FY2005) by 2030 (About 0.927 billion t CO₂)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Targeted emissions for each sector in FY2030</th>
<th>Compared to the FY2013 result (FY2005 result)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy source CO₂</td>
<td>927</td>
<td>24.9% (24.0%) reduction</td>
</tr>
<tr>
<td>Industry sector</td>
<td>401</td>
<td>6.5% (12.3%) reduction</td>
</tr>
<tr>
<td>Other business sector</td>
<td>168</td>
<td>39.8% (29.7%) reduction</td>
</tr>
<tr>
<td>Residential sector</td>
<td>122</td>
<td>39.3% (32.2%) reduction</td>
</tr>
<tr>
<td>Transport sector</td>
<td>163</td>
<td>27.6% (32.1%) reduction</td>
</tr>
<tr>
<td>Energy conversion sector</td>
<td>73</td>
<td>27.7% (29.8%) reduction</td>
</tr>
</tbody>
</table>
Integrated approaches to promote not only electrification but also reform towards wiser use of cars are necessary in order to achieve the reduction of CO2 emissions, while activating the transport essential in the society.

**Carbon-Neutral Fuels**
- Synthetic fuel
- Renewable energy etc.

**Electrification**
- Electric Vehicle, Fuel-Cell Vehicle
- Recharging facility, hydrogen station etc.

**Wise Use of Car**
- New mobility service
- Efficient and decarbonized logistics
- Automated driving and digital technology
- User awareness of electrification etc.
### Target and trend of Next-Generation Vehicles

#### Target units and the Current Situation of Next Generation Vehicles in Japan


<table>
<thead>
<tr>
<th></th>
<th>FY2019</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conventional Vehicle</strong></td>
<td>60.8%</td>
<td>30-50%</td>
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<tr>
<td></td>
<td>(2.61 mil. units)</td>
<td></td>
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<tr>
<td><strong>Next-generation vehicle</strong></td>
<td>39.2%</td>
<td>50-70%</td>
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<tr>
<td></td>
<td>(1.69 mil. units)</td>
<td></td>
</tr>
<tr>
<td><strong>Hybrid Vehicle</strong></td>
<td>34.2%</td>
<td>30-40%</td>
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<tr>
<td></td>
<td>(1.47 mil. units)</td>
<td></td>
</tr>
<tr>
<td><strong>Battery Electric Vehicle</strong></td>
<td>0.49%</td>
<td>20-30%</td>
</tr>
<tr>
<td></td>
<td>(21 thou. units)</td>
<td></td>
</tr>
<tr>
<td><strong>Plug in Hybrid Vehicle</strong></td>
<td>0.41%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(18 thou. units)</td>
<td></td>
</tr>
<tr>
<td><strong>Fuel Cell Electric Vehicle</strong></td>
<td>0.02%</td>
<td>3%</td>
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<tr>
<td></td>
<td>(700 units)</td>
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<tr>
<td><strong>Clean Diesel Vehicle</strong></td>
<td>4.1%</td>
<td>5-10%</td>
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<td></td>
<td>(0.175 mil. units)</td>
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</table>

**New Target in the “Green Growth Strategy” (Dec. 2020)**

- **Electrification of all new passenger cars by mid-2030s**

(*) EV, FCV, PHEV and HV are included.
Measures to Promote Next-Generation Vehicles

1. Regulations and standards
   ✓ Fuel efficiency standard and emission regulation are stipulated for each type of motor vehicles.

2. Tax incentives & subsidies
   ✓ Next-generation vehicles are promoted through tax incentives and subsidies.

3. International harmonization of regulations (WP.29)
   ✓ International harmonization of regulations related to FCVs and EVs.
FY2030 Fuel Efficiency Standards for Passenger Cars

◆ Target Year: FY 2030
◆ Scope: Gasoline Vehicles, Diesel Vehicles, LPG Vehicles, EVs and PHEVs
◆ Fuel Efficiency Standards:
  - M(Vehicle Weight): Less than 2,759kg
    \[ FE = -2.47 \times 10^{-6} \times M^2 - 8.52 \times 10^{-4} \times M + 30.65 \]
  - M(Vehicle Weight): 2,759kg and over
    \[ FE = 9.5 \]

Regulation target (km/L)

- Target Values※: Increase from the actual value in FY2016
  - 25.4km/L  \(+32.4\%\)

※ Calculated by using the weighted harmonic mean of the sales figures of FY2016

◆ Assessment of Fuel Efficiency: The concept of Well-to-Wheel efficiencies is introduced in the next fuel efficiency standards.
FY2030 Fuel Efficiency Standards introduces “Well-to-Wheel” evaluation, which incorporates the assessments of generation, transmission and consumption of energy.

Most cost effective approach for energy saving and de-carbonization will be promoted among various technical options, including carbon-neutral fuels and renewable energy.

<Well-to-Wheel evaluation – case of Electric Vehicle>
## Financial Support for Next-Generation Vehicles

<table>
<thead>
<tr>
<th>Type</th>
<th>Hybrid vehicle (HV)</th>
<th>Plug-in hybrid electric vehicle (PHEV)</th>
<th>Electric vehicle (EV)</th>
<th>Fuel cell vehicle (FCV)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Tax incentives</strong></td>
<td>Tax incentives available</td>
<td></td>
<td></td>
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<tr>
<td><strong>Subsidies</strong></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>(private vehicles)</td>
<td></td>
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<tr>
<td>Subsidy by METI</td>
<td>13.0 billion yen</td>
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<tr>
<td><strong>Subsidies</strong></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(commercial vehicles)</td>
<td></td>
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<tr>
<td>Subsidy by MLIT</td>
<td>0.51 billion yen</td>
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<tr>
<td>Subsidy for EV trucks and HV trucks by MOE</td>
<td>1.0 billion yen</td>
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<tr>
<td><strong>Subsidies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>(others)</td>
<td></td>
<td></td>
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<tr>
<td>Subsidy for Charging infrastructure by METI</td>
<td>0.9 billion yen</td>
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<tr>
<td>Subsidy for hydrogen supply facilities by METI</td>
<td>12 billion yen</td>
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</tbody>
</table>

(*) For FY2020

METI: Ministry of Economy, Trade and Industry
MOE: Ministry of the Environment
Participation in Activities for Harmonization of Vehicle Regulations at UN-WP.29

The United Nations

Economic Commission for Europe

World Forum for Harmonization of Vehicle Regulations (WP.29)

GRSG  GRSP  GRVA  GRPE  GRBP  GRE

1958 Agreement

Establishment of international standards
Mutual recognition of certification

Switzerland
Thailand
and others

1998 Agreement

Japan
EU
Russia
Australia
Malaysia
and others

The U.S.
Canada
China
and others

Establishment of international standards
Japan promotes international harmonization of regulations wherever possible while ensuring environmental preservation in Japan.

International harmonization of vehicle regulations (WP29)

- UN Regulation No.100 (Electric Safety)
- UN Regulation No.134 (Hydrogen fuelled vehicles)
- UN Regulation No.136 (Electric powered 2&3 wheelers)
- UN GTR No.13 (Hydrogen and Fuel Cell Vehicle Safety)

International harmonization of regulations offers the following advantages:
- For automobile manufacturers, promotion of environmental technology by more efficient research and development, and reduced development and production costs through unifying specifications.
- Reduced purchase prices of next-generation vehicles for motor vehicle users.

Nissan LEAF (EV)  TOYOTA MIRAI (FCV)
Conclusion

- Japan has long-term policy target of “2050 Carbon Neutral” in view of the Paris Agreement, which stipulates its objective to hold that while holding the increase in the global average temperature to below 2°C above pre-industrial level.

- It is important to take integrated approaches to reduce the emission of GHG.

- MLIT promotes
  1. Establishment of fuel efficiency standards and emission regulations
  2. Tax incentives & subsidies
  3. International harmonization of regulations (WP.29)

- MLIT will contribute to address the environmental problem, not only in Japan but also globally, by making best use of its knowledge and experiences.