

Revisions of the cabinet order, the ministerial ordinance, and the Notification of the Ministry of Economy, Trade and Industry (METI) and Ministry of Land, Infrastructure, Transport and Tourism (MLIT) under the Act on the Rational Use of Energy

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Energy Efficiency Division  
Agency of Natural Resources and Energy  
Ministry of Economy, Trade and Industry

Environmental Policy Division  
Road Transport Bureau  
Ministry of Land, Infrastructure, Transport and Tourism

## 1. Background

Under the Act on the Rational Use of Energy (Law No. 49 of 1979; hereinafter referred to as the "Energy Efficiency Law"), the Minister of Economy, Trade and Industry (METI Minister) and the Minister of Land, Infrastructure, Transport and Tourism (MLIT Minister) shall decide the standards for manufacturers and importers (hereinafter referred to as "manufacturer, etc.") in regard to improvement of the energy efficiency performance with respect to vehicles included in the energy consumption equipment classification which is specified in the cabinet order under the Energy Efficiency Law (hereinafter referred to as "energy efficiency standards"). Moreover, the METI Minister and MLIT Minister shall decide requirements for indication of the information regarding energy consumption efficiency (fuel efficiency) in manufacturer catalog.

Additionally, the energy efficiency standards shall be established by taking into consideration the highest level of energy consumption performance of the respective specified energy consumption equipment and other related factors (as it is called the "Top Runner Program").

The METI Minister and MLIT Minister propose new energy efficiency standards for passenger vehicles in order to promote rationalization of energy use pertaining to passenger vehicles in Japan and disseminate information on energy efficient passenger vehicles in order to cope with the recent increase of energy consumption in the transport sector, climate change, and so forth.

## 2. Outline of amendment

In addition to vehicles already subject to the current standards, electric vehicles and plug-in hybrid vehicles, which are expected to become widespread to a considerable extent in years to come, are also made subject to the new standards.

New energy efficiency standards to be achieved by FY2030 are established for passenger vehicles.

### i) Scope of the standards

Vehicles fueled by gasoline, diesel, or LPG and vehicles with engines powered by externally charged electricity which are passenger vehicles whose types are designated and-

- a) Have a carrying capacity of up to 9 passengers; or
- b) Have a carrying capacity of 10 or more passengers and a gross vehicle weight up to 3.5t.

### ii) Target fiscal year

FY2030.

iii) Energy consumption efficiency

The energy consumption efficiency is calculated as shown in the following table using values calculated by the MLIT Minister.

Table 1 Energy consumption efficiency

	Energy consumption efficiency <sup>1</sup>	Values calculated by the MLIT Minister
Gasoline-fueled vehicles	$FE_G$	$FE_G$ : Energy consumption rate when driving in WLTC mode, calculated by the MLIT Minister upon type approval (km/L)
Diesel vehicles	$\frac{FE_D}{1.1}$	$FE_D$ : Energy consumption rate when driving in WLTC mode, calculated by the MLIT Minister upon type approval (km/L)
LPG-fueled vehicles	$\frac{FE_{LPG}}{0.74}$	$FE_{LPG}$ : Energy consumption rate when driving in WLTC mode, calculated by the MLIT Minister upon type approval (km/L)
Electric vehicles	$\frac{6750}{EC}$	AC electricity consumption rate (EC): AC electricity consumption rate when driving in WLTC mode, calculated by the MLIT Minister upon type approval (Wh/km)
Plug-in hybrid vehicles	$FE_{PHEV}^2$	Hybrid fuel consumption rate ( $Fe_{CS}$ ): Running distance in kilometers per 1 liter of fuel when driving in WLTC mode without using externally charged electricity, calculated by the MLIT Minister upon type approval (km/L) Plug-in fuel consumption rate ( $Fe_{CD}$ ): Running distance in kilometers per 1 liter of fuel when driving in WLTC mode while using externally charged electricity, calculated by the MLIT Minister upon type approval (km/L) Plug-in range ( $R_{CD}$ ): The maximum running distance in kilometers that a vehicle can drive in WLTC mode while using externally charged electricity, calculated by the MLIT Minister upon type approval (km) (hereinafter referred to as the "plug-in range") Electricity consumption per charge ( $E_i$ ): The amount of externally charged electricity required for driving the plug-in range, calculated by the MLIT Minister upon type approval (kWh/charge)

iv) Fuel efficiency standard values

Fuel efficiency standard values (FE: km/L) are as follows depending on the respective vehicle weight (M: kg)

<p>M: Less than 2,759kg  <math>FE = -2.47 \times 10^{-6} \times M^2 - 8.52 \times 10^{-4} \times M + 30.65</math></p> <p>M: 2,759kg or more  <math>FE = 9.5</math></p> <p>* FE values are rounded off to one decimal place</p>
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v) Method of judging achievement

<sup>1</sup> Values obtained by dividing the energy consumption efficiency based on a Well-to-Wheel evaluation by the energy efficiency until production of gasoline

<sup>2</sup>  $FE_{PHEV} = 1 / (UF(R_{CD}) \times (1 / Fe_{CD} + 1 / (6.75 \times R_{CD} / E_i)) + (1 - UF(R_{CD})) / Fe_{CS})$

$Fe_{CS}$  and  $Fe_{CD}$  for vehicles using diesel as fuel are values divided by 1.1, respectively.  $Fe_{CS}$  and  $Fe_{CD}$  for vehicles using LPG as fuel are values divided by 0.74, respectively.

UF: Rate of plug-in driving (factor) calculated in accordance with the plug-in range

$UF(R_{CD}) = 1 - \exp(29.1 \times (R_{CD} / 400)^6 - 98.9 \times (R_{CD} / 400)^5 + 134 \times (R_{CD} / 400)^4 - 89.5 \times (R_{CD} / 400)^3 + 32.5 \times (R_{CD} / 400)^2 - 11.8 \times (R_{CD} / 400))$

The standard is judged to have been met when the weighted harmonic mean of the energy consumption efficiency of all vehicles subject to the fuel efficiency standards shipped by a manufacturer in the target year, which is obtained by dividing by the number of shipped vehicles (the value of the Corporate Average Fuel Efficiency (CAFE)), is not below the weighted harmonic mean of the fuel efficiency standard value, which is obtained by dividing by the number of vehicles actually shipped by the manufacturer in the relevant target year (the CAFE standard value). This judging method is called CAFE regulation, which is applied to the current standard.

vi) Labeling matters, etc.

These revisions include requirements that manufacturers should indicate on their catalog with regard to energy consumption efficiency and electric range etc.

### 3. Proposed date of entry into force

Around spring of 2020 (except requirement for indication\*).

\* As for requirement of indication, proposed date of entry into force is around fall of 2020.