Japan’s Fuel Efficiency Standards

Ministry of Economy, Trade and Industry
Manufacturing Industries Bureau
Automobile Division
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1. Current situation of CO2 emission

Change of CO2 emission in Transportations

The 2010 CO2 emission target is achievable.

Source: Statistics from the Ministry of Environment
2. Comprehensive Efforts

Plan to Achieve Targets in the Transport Department

Comprehensive efforts are necessary.
The green taxation plan, coupled with the pursuit of top level fuel efficiency, has served improvement.

### 3. Green Taxation Plan

<table>
<thead>
<tr>
<th>Exhaust gas</th>
<th>Fuel efficiency standard</th>
<th>Tax reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Surpassed 2010 fuel efficiency standard by 20% or more</td>
<td>50% reduction, 300,000 yen deduction from acquisition value</td>
</tr>
<tr>
<td></td>
<td>Surpassed 2010 fuel efficiency standard by 10% or more</td>
<td>25% reduction, 150,000 yen deduction from acquisition value</td>
</tr>
</tbody>
</table>

**Passenger vehicles**

- Low emission vehicle (75% lower than the 2005 emission standard)
- Surpassed 2010 fuel efficiency standard by 20% or more
- Surpassed 2010 fuel efficiency standard by 10% or more
- Vehicle surpassing 2010 fuel efficiency standard by 20% or more
- Vehicle surpassing 2010 fuel efficiency standard by 10% or more

**Heavy-duty vehicles**

- 10% lower NOx or PM than new long-term requirement
- Coupled with new long-term regulation
- Heavy-duty vehicles surpassing 2015 fuel efficiency standard
- Vehicle that achieved fuel efficiency standard in 2015

<table>
<thead>
<tr>
<th></th>
<th>Tax reduction</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Automobile tax reduction</td>
</tr>
<tr>
<td></td>
<td>Automobile acquisition tax</td>
</tr>
<tr>
<td>Heavy-duty vehicles</td>
<td>2% reduction</td>
</tr>
<tr>
<td>Coupled with new long-term regulation</td>
<td>1% reduction</td>
</tr>
</tbody>
</table>

Implementation period: 2 years (To the vehicles that will be registered in 2006 and 2007)

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**Change of fuel efficiency in passenger cars**

- Already achieved
- Introduction of 2010 fuel efficiency standards
- 2010 Target year

**Target year**

<table>
<thead>
<tr>
<th>Year</th>
<th>(L/km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
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</tbody>
</table>

**Target**

- Surpassed 2010 fuel efficiency standard by 20% or more
- Surpassed 2010 fuel efficiency standard by 10% or more
- Heavy-duty vehicles surpassing 2015 fuel efficiency standard
- Vehicle that achieved fuel efficiency standard in 2015

**Achievement**

- 50% reduction
- 25% reduction
- 10% lower NOx or PM than new long-term requirement
- Coupled with new long-term regulation
- 300,000 yen deduction from acquisition value
- 150,000 yen deduction from acquisition value
- 2% reduction
- 1% reduction
Four main features of Japan’s Fuel Efficiency standards

1) Top runner approach
2) Segmentalized for fairness
3) Obligation to each manufacturer
4) Relatively loose penalties
5. Top runner approach

Top Runner Approach

- By target year, average fuel consumption must be higher than the best fuel efficiency in the base year.
- Standard will become high but reachable because target values are already achieved by actual vehicles in the base year.
- Particular types of cars such as HEVs and MT mounted cars are excluded from top runner.

Example of Top Runner Approach

Specified equipment (21 devices)

1. Passenger vehicle
2. Freight vehicle
3. Air conditioner
4. Television
5. Videocassette recorder
6. Fluorescent light tube
7. Copy machine
8. Computer
9. Magnetic disk drive
10. Electric refrigerator
11. Electric freezer
12. Kerosene heater
13. Gas stove
14. Gas-powered water heater
15. Electric-powered water heater
16. Electric toilet seat
17. Vending machine
18. Transformer
19. Transformer
20. Microwave oven
21. DVD recorder

* What is Top Runner Approach?
Top runner approach is a method to set the efficiency standard higher than the energy efficiency of most efficient product currently available in the market.
6. Segmentalized for fairness

Segmentalized for fairness

- Segmentalized so that competition will become fair in each category
  → Promoting introduction of advanced power-train and vehicles technologies by classifying vehicles into different inertia weight-based categories

In the case of a single standard value

- Company A sells mostly compact cars that are above the standard value, so no improvement is necessary.
- Company B sells mostly larger vehicles that are below the standard value, so most cars need improvement.
- Meeting the standard is possible just by increasing the sales of compact cars

In the case of a standard value for each category

- Both Company A and B must improve the fuel efficiency of cars that are below the standard
- Both companies cannot meet the standard by change of model mix and therefore, introduction of advanced technologies is necessary for all the weight classes.
7. Obligation to each manufacturer

By imposing obligation to each manufacturer, competition occurs between manufacturers to introduce advanced technologies.

If obligation is not imposed to each manufacturer:
- Responsibility to improve fuel efficiency will become very vague.
- Overriding other manufacturers efforts will become possible, resulting in moral hazard.
- Almost no competition among different manufacturers.

If obligation is imposed to each manufacturer:
- All manufacturer except the ones that are above the standard will have to make efforts to improve fuel efficiency.
- Competition occurs between manufacturers and advanced technologies will be introduced one after another.

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**Diagram:**

- **FE (km/l):**
- **Standard value of certain category:**

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8. Relatively loose penalties

- Purpose of the energy saving law is not to regulate manufacturers but to promote efforts by manufacturers to improve energy efficiency of each product.
- Even if fuel efficiency standard is not met, there is no immediate penalty.

**Procedure for penalty when standard is not met at the target year**

1. **Data Submission**
2. **Judgment before admonition**
   - Improvement
   - No improvement
3. **Admonition**
   - Improvement
   - No improvement
4. **Public Announcement**
   - Improvement
   - No improvement
5. **edict**
   - Improvement
   - No improvement
6. **Penalty (Less than 1 million yen)**

Government (METI, MLIT)