
Diesel-Vehicles Emission Control in Japan

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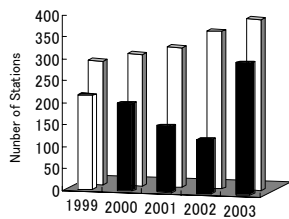
Presentation Overview

- 1. Background of Motor Vehicle Emission Control**
 - 2. Framework of Emission Control**
 - 3. Tightening Emission Standards for New Models**
 - 4. Automobile NOx/PM Reduction Law**
 - 5. Promoting Low Emission Vehicles**
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Background of Motor Vehicle Emission Control

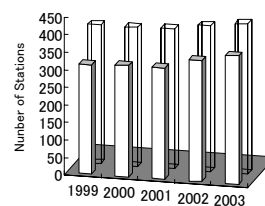
Attainment rate of EQS for air pollution (Road side)

(SPM)



	1999	2000	2001	2002	2003
□ Number of Attained Stations	215	199	151	123	301
□ Total Number of Monitoring Stations	282	301	319	359	390
Attainment rate(%)	76.2	66.1	47.3	34.3	77.2

(NO₂)

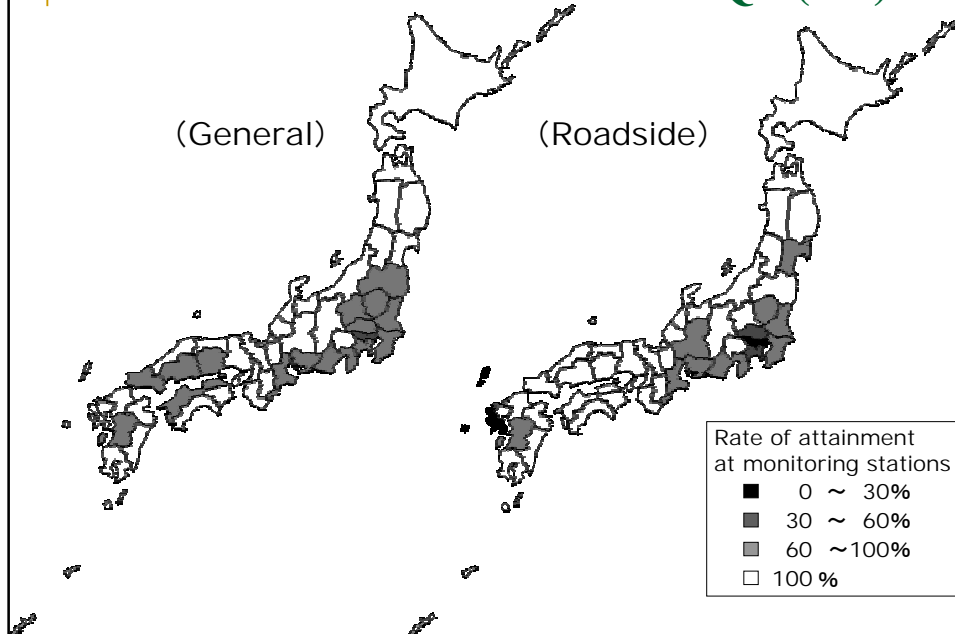


	1999	2000	2001	2002	2003
□ Number of Attained Stations	310	316	317	345	365
□ Total Number of Monitoring Stations	394	395	399	413	426
Attainment rate(%)	78.7	80.0	79.4	83.5	85.7

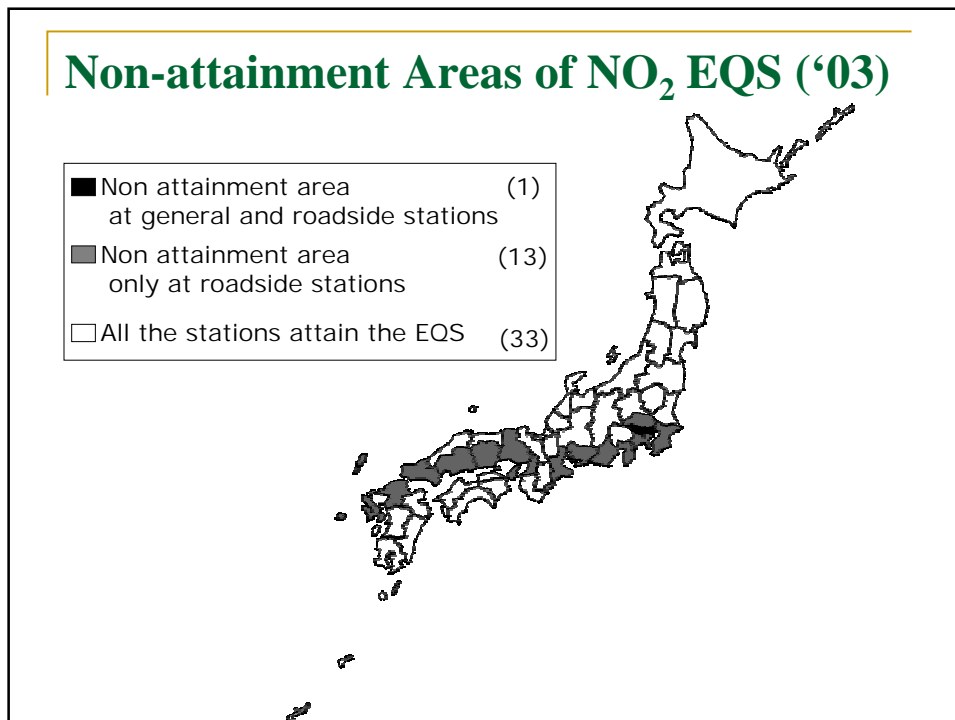
(EQS:Environmental Quality Standards)

- SPM... Daily average is 0.10 mg/m³ or less
- NO₂...Daily average is in a range from 0.04 to 0.06 ppm or below

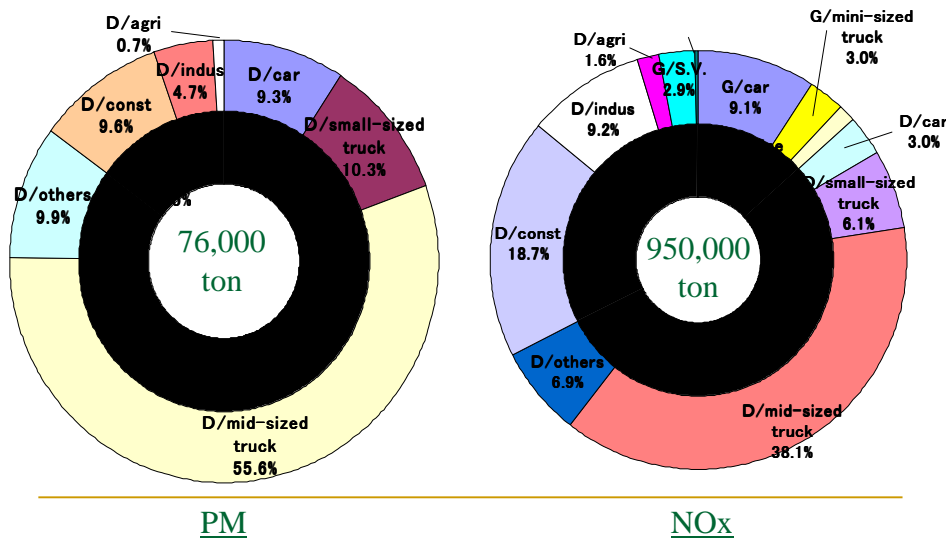
Non-attainment Areas of SPM EQS ('03)



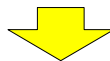
Non-attainment Areas of NO₂ EQS ('03)



Emissions by Source Category ('00)



- Roadside PM & NOx pollution remains severe.
→The national government aim is to meet NO2 & SPM standards mostly by 2010.
- Prime minister Mr. Koizumi is promoting the most advanced environmental measures in the world.
- A Governments have lost in several judgment at courts about health impact of air pollution by diesel-vehicles emission.



**Diesel vehicle emission control shall
be promoted more strongly**

Framework of Emission Control

Motor Vehicle Pollution Control Measures in Japan

- 1. Tightening Emission Standards for New Models**
 - 2. Automobile NOx/PM Reduction Law**
(to ban old vehicles to be registered in Metropolitan areas)
 - 3. Promoting Low Emission Vehicle**
(Hybrid, CNG, FCV, etc.)
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Tightening Emission Standards for New Models

Systems for Exhaust Emission and Fuel Quality Regulation

Recommendation of Central Environmental Council

Air Pollution Control Law (Ministry of Environmental)

<Motor Vehicle Exhaust Emission Reg.>

Permissible Limits of Motor Vehicle Exhaust Emissions

<Fuel Quality Reg.>

Establishment of permissible limits on the automotive fuel quality

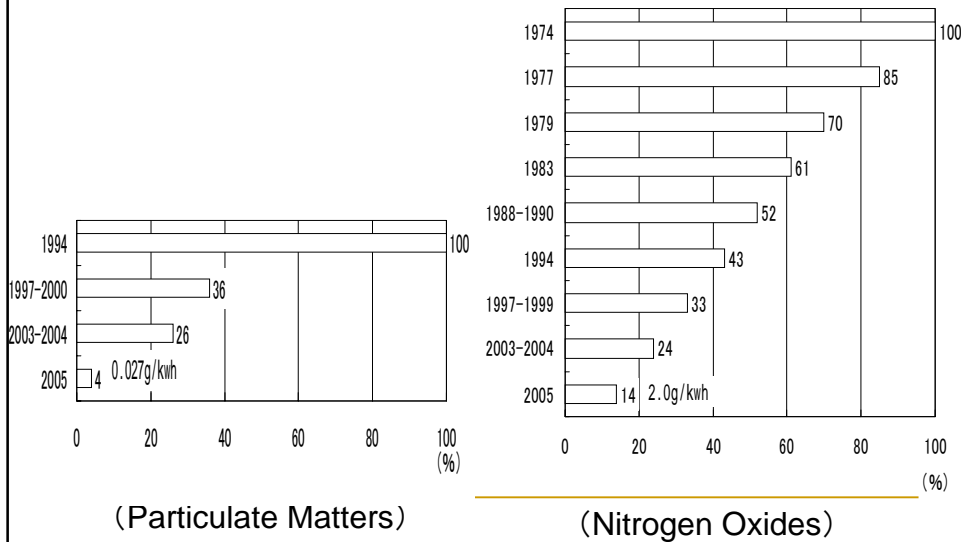
Road Vehicle Act
(Ministry of Land, Infrastructure and Transport)

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Safety Regulation for Road Vehicles

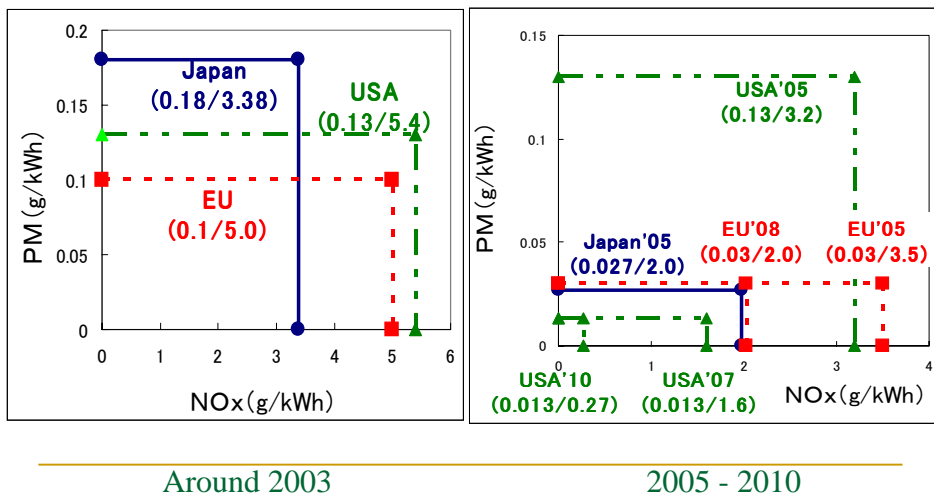
Law of the Quality Control of Gasoline and Other Fuels
(Ministry of Economic, Trade and Industry)

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Establishment of compulsory standards for gasoline and diesel fuel

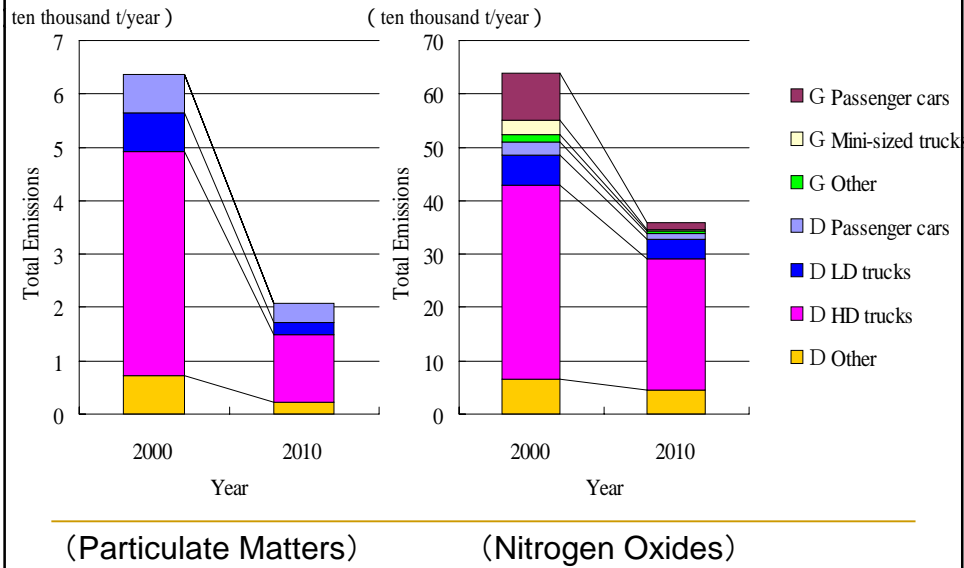
History of Emission Standards (Heavy Duty Diesel Vehicles)



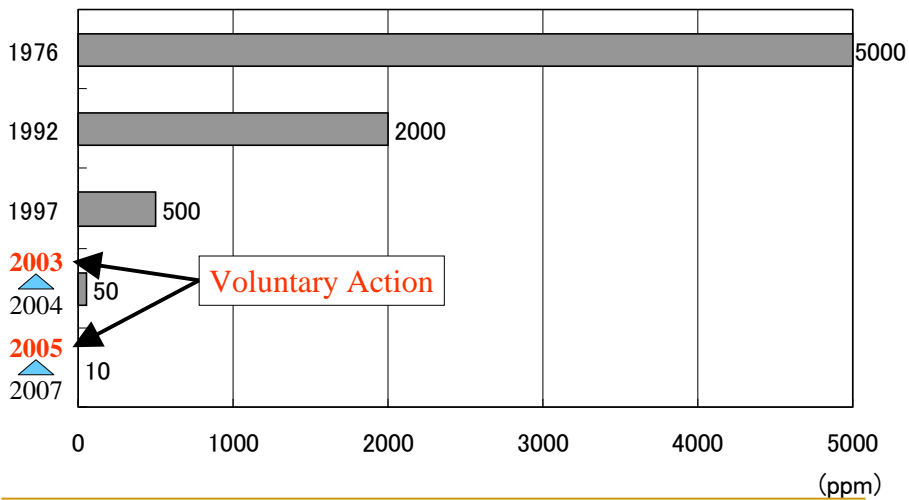
International Comparison of Future Emission Standards on HD vehicles



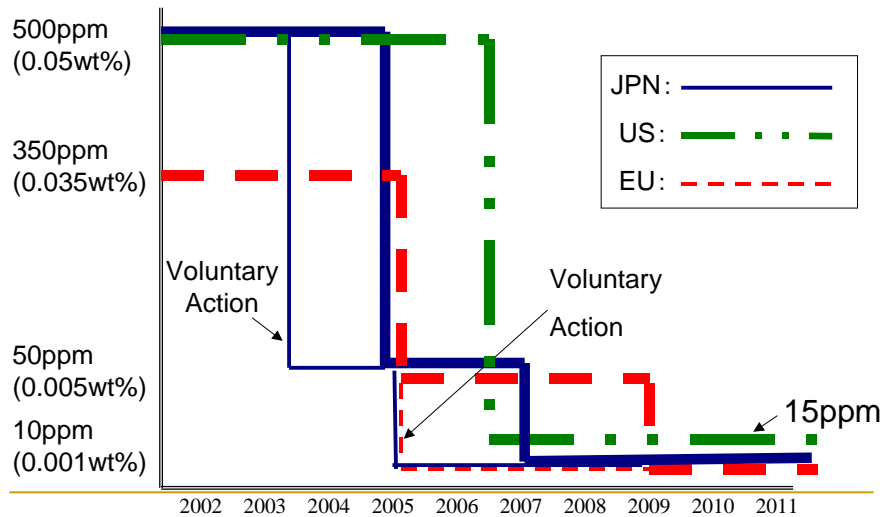
Estimated Effect of Tightening Standards



History of maximum sulfur content in diesel fuel



International Comparison of Future Maximum Sulfur Contents in Diesel Fuel



Discussion in CEC for Future Emission Standards

- July 2003 The 7th report of CEC
- Oct. 2003 Start of discussion about diesel-vehicle emission reduction beyond 2005
- Jan. 2004~ Hearing from
 - Motor vehicle manufacturer
 - Motor vehicle equipment manufacturer
 - Catalyst manufacturer
 -e.t.c.
- Early 2005? 8th report of CEC?

Points of this discussion

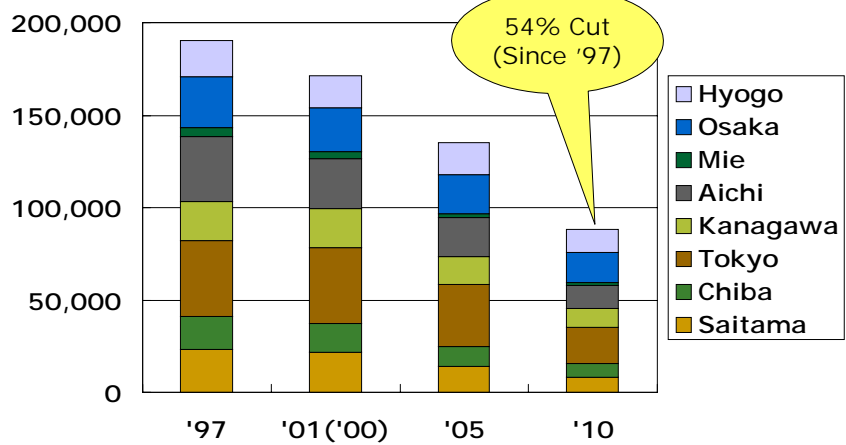
- **NOx emission level at engine out**
 - **NOx reduction ratio by NOx absorber catalyst**
 - **Durability of NOx absorber catalyst**
 - **Possibility of urea-SCR**
 - Who arrange urea supply facility?
 - How to protect of tampering?
 - **When beyond 2005 regulation start to enforce.**
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Automobile NOx/PM Reduction Law

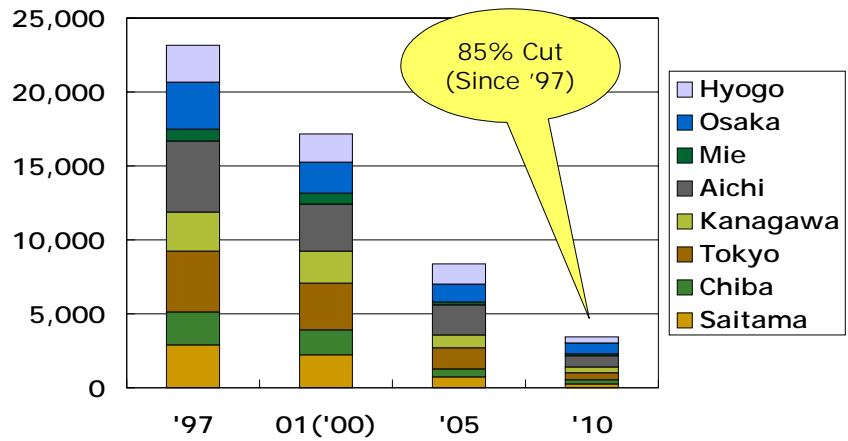
Emission Standards of Automobile NOx/PM Reduction Law

		The standards are equivalent to...	That means...
Diesel passenger cars		NOx: 1978 Gasoline vehicle PM: <u>2005 Diesel vehicle</u>	To use gasoline Vehicles (You can also choose CNGV, LPGV)
Buses, trucks, etc. (diesel, gasoline, LPG)	-1.7t (GVW)	NOx: 1988 Gasoline vehicle PM: <u>2005 Diesel vehicle</u>	<i>Nowadays, few diesel vehicles meet the standard</i>
	1.7-2.5t	NOx: 1994 Gasoline vehicle PM: <u>2005 Diesel vehicle</u>	
	2.5-3.5t	NOx: 1995 Gasoline vehicle PM: <u>2005 Diesel vehicle</u>	
	3.5t-	NOx: <u>1998-99 Diesel vehicle</u> PM: <u>1998-99 Diesel vehicle</u>	To use recent diesel vehicles (You can also choose CNGV, LPGV)

Emission Reduction Plans (for NOx)



Emission Reduction Plans (for PM)



Promoting Low Emission Vehicles

Low Emission Vehicles

- Definition
 - Electric, Natural gas, Methanol, and Hybrid Vehicle
 - Low emission and low fuel consumption GV,DV
 - Next generation vehicle (i.e. Fuel cell vehicle)
- Tax incentive for 50%,70% reduction from standards in 2005 and low fuel consumption
- Prevailing rapidly
(71% of new vehicle sold in 2003 is LEV)
- All major auto-makers announced most of GPC become LEV before 2005

Fuel Cell Vehicles

- Most promising clean cars for future
- Zero emission
- First cars are on the market in Japan and US
- Japanese government introduces 8 FCVs



Thank you for your attention!!

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<http://www.env.go.jp/en/index.html>

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