# *Improving Operating Efficiency of Existing Vehicles*

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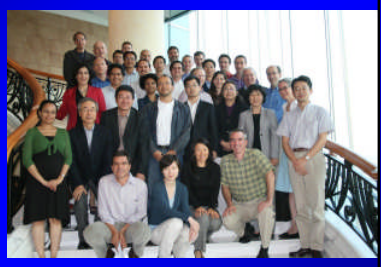
## International Council on Clean Transportation

Goal of the ICCT is to dramatically reduce conventional pollutant and greenhouse gas emissions from personal, public and goods transportation in order to improve air quality and human health, and mitigate climate change.



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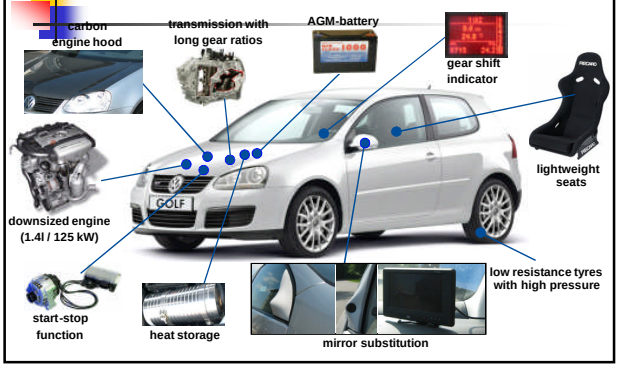
## Approaches To Reducing Fuel Consumption - Greenhouse Gases Around The World

- Tax Policy
- Fiscal Incentives
- Traffic Incentives
- Fiscal Penalties
- Regulation
  - Fuel Economy/Consumption
  - CO2 Emissions
  - Greenhouse Gases
- Voluntary Agreements
- Renewable Fuels Requirements/Incentives
- Vehicle Technology Mandates/Incentives
- Joint Government/Industry Research

## Level Of Fuel Taxation Has Multiple Direct Or Indirect Impacts

- Speed
- Improved lubricants
- Correct tire inflation
- Improved Inspection and Maintenance
- Eco-Driving (Raising Awareness)
- More efficient vehicles
- Transport Demand Management & Mobility management
- Replacement of vehicle fleet / higher share of NMT/IMT
- Priorisation of NMT and Public Transport
- Integration of Transport and Land-use planning
- New vehicle concepts
- Shift to alternative fuels

## Fuel saving measures




## Land-Use and Transport Are Closely Related: Integrated Planning Needed

**Urban Land-Use**

- Mixed-use areas
- No disperse settlements
- Population density
- City center residents
- Urban architecture to attract walking
- High-use locations transit-orientated

**Urban Transport System**

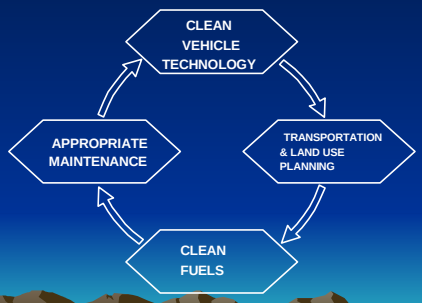
- Balanced use of road area
- Priority for public transport and for NMT
- Transport management for sustainability goals
- Time losses for PT travelers are cost.
- All travels have to be paid by the traveler.

***Implementation of fair cost structures in transport and land-use***

## Challenges Associated With Existing In Use Vehicle Efficiency Improvements

- Proper Design of I/M Programs
- What To Do With Failing Vehicles
- Used Car Imports/Exports

## ELEMENTS OF A COMPREHENSIVE VEHICLE POLLUTION CONTROL STRATEGY



## I/M Plays A Critical Role

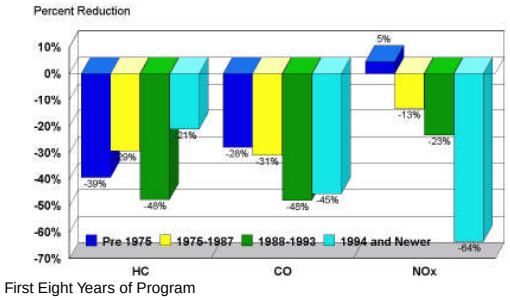
- Improved Vehicle Maintenance
- Deterrent To Tampering
- Deterrent To Misfueling
- Primary Enforcement Mechanism For Other Strategies
  - Alternative Fuel Retrofit
  - Other Retrofit

## Vehicle Inspection and Maintenance (I/M) Program

- Purpose:
  - To Assure that vehicle is properly maintained and used
  - Identify Dirtiest Vehicles & Get Them Repaired
  - Identify Unsafe vehicles & Get them Repaired
- General Attributes:
  - Relatively short
  - Relatively simple
- Test Types
  - Idle
  - 2-Stage Idle
  - Steady Speed Loaded
  - Transient Loaded
- Administrative Structures
  - Test and Repair
  - Test Only (Centralized)

Lessons From British Columbia Program

## Emissions Reductions Following Repairs of Failed Vehicles




First Eight Years of Program

## Lessons From British Columbia Program Upgrade At The Appropriate Time

- AirCare inspected 748,068 light-duty vehicles in 2001 and 778,521 in 2002; 16% failed initial inspection
- Of the 16% that failed the initial inspection:
  - 70% received a full pass on the re-test,
  - 10% were partially repaired and received a conditional pass and
  - 20% were "retired" from the fleet
- Introduction of IM240 for 1992 and newer vehicles had a dramatic effect on the failure rate for these vehicles.
  - Prior to 2001, the failure rate was less than 3%.
  - In 2002, the failure rate reached 9.6%. Enhanced test identified excessively emitting vehicles that were not being identified by the previous test.

## Lessons From Hong Kong Diesel Tests Under Load

## Elements of A Successful I/M Program