SOLUTIONS Knowledge Sharing Kit Cluster 6: Clean vehicles

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About SOLUTIONS

SOLUTIONS aims to foster knowledge exchange and boost the uptake of innovative sustainable urban mobility solutions through the further exploitation of existing knowledge.
The main focus of the SOLUTIONS project is on the exchange between cities from Europe, Latin America and the Mediterranean.

The project looks at the following thematic areas:
- public transport
- transport infrastructure
- city logistics
- integrated planning / sustainable urban mobility plans
- network and mobility management
- clean vehicles

Introduction to Cluster 6: Clean vehicles

Clean vehicles: hybrid electric vehicles (HEVs), plug-in hybrid electric vehicles (PHEVs), battery electric vehicles (BEVs)

Issues: electric vehicles' well-to-tank emissions (i.e. from electricity generation)

Main focus: ten innovative transport solutions from around the world

SOLUTIONS for	Type of impact
Registration restrictions/number plate auctions	Shift (Improve)
Management of electric two-wheelers	Shift (Improve)
Fuel economy/CO2 standards	Improve
Fuel switch in taxi fleets: EVs	Improve
Fuel switch in taxi fleets: LPG/CNG	Improve
Emission-based vehicle taxation	Improve (Shift)
Clean vehicles in municipal fleets	Improve
Information and promotion of clean vehicles	Improve
Infrastructure for clean vehicles	Improve
Fleet renewal schemes	Improve (Shift)

Solution 6.1: registration restrictions/number plate auctions

Objectives and implementation

- Aims to limit a city's vehicle fleet by linking car-ownership to possession of some form of permit
- May increase the use of more sustainable modes such as public transport and non-motorised modes

Solution 6.2: management of electric two-wheelers

Objectives and implementation

- Aims to replace fossil-fuelled two-wheelers (or passenger cars) with electric two-wheelers
- Electric two-wheeler plan can be written, based on an examination of the role and implications of electric two-wheelers in the transport system
- **Possible measures:**
  - banning non-electric PTWs,
  - dedicated parking and charging areas for electric two-wheelers,
  - separate lanes for (electric) two-wheelers,
  - special waiting areas at intersections for motorcycles,
  - excluding (electric) two-wheelers from city tolls

Solution 6.3: fuel economy/CO2 standards

Objectives and implementation

- Aims to improve the fuel economy of the new vehicle fleet and to reduce the emissions per vehicle-kilometre
- Effective approach to accelerate technology innovation
- Different implementation approaches:
  - based on fuel consumption per distance travelled
  - based on CO2 emissions per kilometer travelled
  - based on all GHG emissions
  - based on the energy intensity (MJ/km) of the vehicle

Solution 6.4: fuel switch in taxi fleets: EVs

Objectives and implementation

- EVs are very suitable to be used as taxis and tricycles
- Distances that taxis and tricycles cover are usually within the driving range of regular electric vehicles
- Charging can be easily provided during waiting times at major taxi stands
- City can encourage adoption by:
  - providing financial incentives
  - providing necessary infrastructure
  - tightening local emission standards.
  - adapting local regulations to facilitate use of EVs

Solution 6.5: fuel switch in taxi fleets: CNG/LPG

Objectives and implementation

- Reduce local air pollution, noise and GHG emissions compared to petrol or diesel equivalents
- Combination of different instruments:
  - Financial incentives for the vehicles/fuels
  - Provision of sufficient refueling stations (CNG)
  - Restrictions on conventional taxis
- Loans can help vehicles or fleet owners to bear the initial conversion cost of switching to LPG or CNG

Solution 6.6: emissions-based vehicle taxation (annual & purchase/registration tax)

Objectives and implementation

- Aims to create disincentives for acquisition and use of heavily polluting vehicles, while creating incentives for less polluting vehicles
- Higher tax rates for larger, more polluting and fuel-consuming vehicles
- Acquisition taxes can be levied through a "feebate" system: cleaner vehicles benefit from a rebate, financed by higher taxes on more polluting vehicles.
- Tax exemptions can be allowed for specific technologies

Solution 6.7: clean vehicles in the municipal fleet

Objectives and implementation

- Way to encourage the use of cleaner vehicles through the way municipalities manage their own fleets
- Municipal procurement guidelines may oblige departments and municipal enterprises to purchase fuel-efficient, low-emission vehicles
- …especially where municipal enterprises operate local public transport, waste collection or street cleaning services
- Implement an accounting system which keeps long-term savings in the investing department

Solution 6.8: information and promotion of clean vehicles

Objectives and implementation

- Aims to increase the share of clean vehicles in private and commercial fleets
- Provide information on clean vehicles to the public, e.g. in form of a campaign
- Create advantages for the use of clean vehicles
- Local activities should be linked to nation-wide schemes, e.g. vehicle labelling systems based on CO_2 emissions, local air pollutants or fuel economy

Solution 6.9: infrastructure for clean vehicles

Objectives and implementation

- Address "chicken and egg dilemma" by providing or supporting initial infrastructure development
- City can reduce the barriers for clean vehicle adoption by providing support for the installation of refuelling/charging stations
- City can install its own charging facilities or provide the necessary land
- Close cooperation with electricity suppliers or car dealers can speed up installation

Solution 6.10: fleet renewal schemes

Objectives and implementation

- Provision of monetary incentives for citizens to exchange old vehicles with new clean vehicles
- Should be implemented at national level or linked to national policies
- PPPs can be a means of promoting the measure.
- Can be combined with taxation measures and/or low emission zones to increase effectiveness

Thank you!

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