

Major Economies and Climate Change Research
Group

The High Cost of Mobility: Reducing GHG Emissions from Transport

Executive Summary



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EXECUTIVE SUMMARY

(1) Four largest transportation carbon emitters

The US, EU, and China are the largest overall emitters. All three rank as the top emitters in the transport sector. India is projected to join this group by 2030.

(2) Three Main Transport Emissions Reduction Strategies

- *Avoiding* transportation when possible through reducing demand for trips and emissions from transport infrastructure construction and maintenance
- *Shifting* demand away from carbon intensive transport
- *Improving* transportation through increasing fuel efficiency and alternative fuel use

(3) Potential for Emissions Reduction

- Avoid & Shift Strategies – 1 GtCO₂e by 2030, 2 GtCO₂e by 2050
- Improve Strategies Reducing Road Emissions– 2.5 GtCO₂e s by 2030, 7 GtCO₂e by 2050

Year (2009 baseline)	Total Transport Emissions Reduction Possible (ETP 2012)	Road Emissions Reduction Potential (ETP 2012)	Inferred Avoid and Shift Strategy Reductions
2030	3.5	2.5	1
2050	9	7	2

All units are expressed in GtCO₂e.

(4) Barriers to Implementation (by strategy)

Avoid

- User fees can disproportionately hurt low income groups
- Large disparities in the amount of funds available for infrastructure improvements
- Three out of the four countries/regions in this study (all except China) are highly decentralized in their decision making

Shift

- Lack of investment (US), market saturation (EU)
- Shift is only highly effective in high density population areas
- Prevalence and increase of car culture
- Authoritarian states can shape behavior more effectively than democracies

Improve

- Lack of legislative will for top-down emissions regulations
- General uncertainty about monetary savings from end users
- Ambiguous delineation of responsibility for air and sea emissions
- Alternative fuels require extensive infrastructure investment

(5) Policy Recommendations

General

- Encourage alternative fuel use by increasing taxes on fossil fuels and subsidizing electric vehicle charging infrastructure.
- Reduce carbon intensity of transport through shifting demand for passenger travel and freight from road to rail.
- Continue to pursue fuel efficiency standards and promote emissions regulations in developing countries.
- Expose the true cost of carbon-intensive mobility through internalizing the cost of environmental damage and phasing out fossil fuel subsidies.
- Frame low carbon transport as providing co-benefits such as improved air quality, reduced congestion, and the increased cost effectiveness of travel.
- Increase access to information and support for carbon mitigating development projects.

United States

- **Avoid** - Develop LEED-type standards for transportation infrastructure.
- **Shift** - Create plan for national transport hub system that heavily incorporates multi-modal travel, including light rail.
- **Improve** - Continue to implement progressive fuel economy standards for LDVs and set aggressive standards for MDVs and HDVs.

European Union

- **Avoid** - Conduct case studies on cap and trade policies' effect on member nations, model effects if implemented internationally.
- **Shift** - Market successful case studies to still developing economies like China and India looking to emulate the European Union in terms of urban planning.
- **Improve** - Expand electric vehicle charging infrastructure.

China

- **Avoid** - Determine more sustainable and equitable ways to limit demand for LDV travel, such as distance fees.
- **Shift** - Continue to explore using fiscal incentives like tax breaks to promote the use of EV and alternative fuel technology and plug-in infrastructure.
- **Improve** - Encourage partnerships between domestic and international vehicle manufacturers, to accelerate diffusion of clean technology.

India

- **Avoid** - Build on existing tendencies to avoid road transport through smart growth and less carbon intensive transport infrastructure development projects.
- **Shift** - Continue to pursue rail as the dominant form of freight, and use the strength of the Black Carbon Initiative and black carbon tax to prevent lorry traffic from absorbing rail's market share of freight.
- **Improve** - Explore use of alternative fuels that can be easily integrated into transport systems